

Psychological Bulletin

Fiftieth Anniversary Meeting of the American Psychological Association

As Originally Planned for Boston and Cambridge

Wednesday, Thursday, Friday, and Saturday

September 2, 3, 4, 5

1942

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The program of scientific papers at Boston has been cancelled. The Annual Business Meeting of the Association will be held in New York City, Thursday, September 3, 1942, at 1:30 P.M. in the Hotel Pennsylvania. See next page.

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ANNOUNCEMENT OF ANNUAL MEETING OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

On June 19, 1942, the Office of Defense Transportation of the Office of Emergency Management issued a request that meetings of various types be postponed for the duration of the war in the interest of maximum utilization of transportation and that meetings concerned with the war program be "skeletonized."

In cooperation with this request the Council of Directors of the American Psychological Association has voted to abandon the program of scientific papers, celebrations, and roundtables as planned for the Hotel Statler in Boston and for Harvard University at Cambridge. As an alternative Council has called an Annual Meeting for 1:30 P.M. on Thursday, September 3, 1942 at the Hotel Pennsylvania in New York City for the transaction of the essential business of the Association and for the development of the work already in progress for the participation of psychologists in the war effort. It is expected that this meeting will be attended by members of Council, chairmen of committees, representatives, and others in the immediate environs. Voting Members will receive an additional notice and agenda of the meeting. Associates and Members are invited to submit proposals to the Secretary for consideration at the meeting.

The Program Committee, Council, and Editor of the *Bulletin* have agreed that the Program Number should be issued as a record of the period and it is presented herewith.

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PROGRAM

GENERAL

Wednesday, September 2, 9:00 A.M.

Georgian Room

ROBERT M. YERKES, Chairman

- 9:00 A.M. HENRY A. MURRAY, Harvard University. *The Diagnosis of Personality.*
- 9:45 A.M. JOHN C. WHITEHORN, M.D., Henry Phipps Professor of Psychiatry, Johns Hopkins University. *The Psychiatric Study of Personal Relationships.*
- 10:30 A.M. CURT P. RICHTER, The Johns Hopkins Hospital. *The Biology of Drives.*
- 11:15 A.M. HERBERT H. JASPER, Montreal Neurological Institute. *Some Psychological Implications of Electrical Signs of Cerebral Function.*

EDUCATIONAL

Wednesday, September 2, 1:15 P.M.

Georgian Room

SIDNEY PRESSEY, Chairman

- 1:15 P.M. *Implications from the Psychology of Learning for Common School Practices in Evaluation.* C. ROBERT PACE, Commission on Teacher Education, American Council on Education.

An examination of commonly accepted principles regarding the conditions for effective learning compared with some of the widely used methods of measuring or evaluating the growth of students in schools reveals many inconsistencies. If one takes the position that evaluative activities should in themselves possess instructional or educative value, these contradictions between theory and practice should be removed.

From McConnell's attempt to synthesize various psychologies of learning in the forty-first yearbook (Part II) of the National Society for the Study of Education, several widely accepted characteristics of effective learning may be mentioned: (1) "The organism must be motivated to learn." (2) "Responses during the learning process are modified by

their consequences." (3) "Motivation is the direction and regulation of behavior toward a goal." (4) "Responses are selected, eliminated, organized and stabilized in terms of their relevance to the learner's goals." (5) "The fact that the goal concept . . . has been treated as a dominant aspect of motivation implies that a real goal is one which the individual wants to attain."

Evaluative practices such as the following are judged to be inconsistent with one or more of the above-mentioned principles: (1) Evaluating students with respect to goals that are not clear to them or are not accepted by them. (2) Giving tests before students are ready for them, that is, before they have developed any genuine reason for wanting to take them. (3) Giving tests the results of which are never made known to students, and from which they have no opportunity to profit.

Reference will be made to some experimental evaluative practices that have tended to promote effective learning. [15 min.]

1:35 P.M. *An Analysis of Certain Evaluative Procedures in the Light of Some Commonly Expressed Characteristics of Democratic Education.*
MAURICE E. TROYER, Commission on Teacher Education, American Council on Education.

Evaluative procedures should be examined periodically in the light of philosophical concepts commonly held by teachers and administrators. Otherwise practices developed in psychological and research divisions may operate in direct opposition to these concepts and certain basic goals of education.

Current educational literature especially emphasizes that the program of the school should, first, give each pupil a deep feeling of competence, adequacy, and security; and second, be in harmony with the principle that man should treat his neighbor as a human being of dignity and worth.

The first purpose of this paper is to examine, in the light of these two concepts, such evaluative practices as: professing a wide range of goals but appraising with respect to only a few, selecting and administering tests with little regard for individual readiness for appraisal, and interpreting individual results in the light of group norms.

The second purpose of the paper is to propose certain revisions of evaluative practices which might prove worthy of further experimentation. Reference will be made to some exploratory and experimental attempts related to the proposals. [15 min.]

1:55 P.M. *Success in College of Students from Experimental High Schools.*
NEAL E. DROUGHT, Hamilton College.

The purpose of the study was to determine the extent to which students graduating from 30 experimental high schools were successful in their performance on the college level. College success was defined in terms of nine criteria covering the areas of intellectual competence, success in college life, and success in achieving personal goals.

Almost 1,500 such graduates were studied through from one to four

years of college. This group was contrasted with an individually selected conventional school group the members of which were the same as the experimental students in age, race, sex, aptitude, achievement, socioeconomic status, community background, and interests.

The data on both groups included official college records, questionnaires, reports from instructors, interviews, and tests.

An analysis of the records of all of the experimental vs. all of the comparison students reveals that the average grades of the experimental group exceeded the comparison group average by a very slight (but statistically significant) margin. In other measures of intellectual competence as well as in the areas of college life and achieving personal goals the experimental students were almost uniformly superior by a small but consistent margin.

Since the schools differed in the extent of experimentation we varied the saturation of the experimental variable by making special analyses of graduates from (1) the six schools deviating most from the conventional pattern, (2) the six schools deviating least, and (3) the two schools judged to be the very most experimental. In each case the experimental group was contrasted with its respective comparison group.

These analyses show that among these schools, the more experimental the program, the greater the success in college of graduates. College success is clearly not a function of any specific pattern of high school units. [15 min.]

2:15 P.M. *The Use of Murray's "Need Psychology" in College Personnel Work.* HERDIS L. DEABLER, North Central College.

H. A. Murray's "Need Psychology" provides not only a framework for personality analysis that is complete and coherent in itself but one that is practical and useful as well. One of its best uses is to be found in college student personnel work where many of the problems encountered find their origin in personality conflicts. Murray's system provides a conceptual scheme for localizing and describing these conflicts. The analysis of the personality is made in terms of manifest (conscious) and latent (unconscious) needs, and methods for judging the strength of needs are presented. Techniques for dealing with conflicting need tensions are set forth. Special attention is given to the discovery of latent needs by use of the thematic apperception test and other projective devices and to the integration of these needs within the personality. [10 min.]

2:30 P.M. *Intelligence, Personality and Self-Analysis.* DANNIE J. MOFFIE, North Carolina State College.

The purpose of the study was to determine the relationship between intelligence, personality and ability to self-estimate one's interests. The Otis Self-Administering test, the Bernreuter personality inventory and the Strong Interest blank were administered to 80 N.Y.A. boys. An interest inquiry form, on which were placed occupations similar to those of the Strong, was administered to each student to check his self-estimated interests. The discrepancy between measured and estimated interest was

related to the intelligence score and the three traits, neuroticism, self-sufficiency, and dominance. Pearson coefficients were then obtained. For the six main groups of the Strong, r 's ranged from $-.170$ to $+.283$. These indicate that no significant relationships exist. It appears, therefore, that intelligence and personality are not significant factors in ability to self-estimate one's interests. [10 min.]

2:45 P.M. *A Comparative Study of the Academic Ability of Students Attending a High School in 1923 and in 1942.* F. H. FINCH, University of Illinois.

A group intelligence test was given to 651 students attending a public high school in April 1923. Nineteen years later, when the high school student body had more than doubled in size, and the percentage of all high school age youth in the community attending the school had increased materially, the same test was repeated under conditions similar to those prevailing at the time of the first examination. A comparison of the scores obtained in the earlier and more recent testings shows the changes in level of ability among the students of this school since the original tests were given. Evidence regarding such matters as population changes in the community and school policies with respect to promotion is examined to reveal the extent to which changes that were discovered may be attributed to each of these influences.

The general conclusion is that selective factors determining high school attendance have not changed in such a way as to draw the increment in high school enrollment mainly from low levels of academic ability, as is frequently assumed by educational workers. It is apparent that selective factors other than those closely associated with academic ability have operated to an important extent in determining what youth attended high school. [15 min.]

3:05 P.M. *A Follow-up Study of the Mental Development of Children in Foster Homes.* MARIE SKODAK, Flint Guidance Center, Flint, Michigan.

The mental development of 139 children placed in adoptive homes under the age of six months, has been studied by means of repeated intelligence tests. Results obtained during the preschool years have already been published. This is a report on the third series of tests given when the children ranged from $4\frac{1}{2}$ to 13 years in age.

The foster parents are above average in educational status, with a mean of 12 grades completed. The occupational level of the foster fathers is 2.8 on a seven point scale on which the mean for the general population is 4.8.

The mean education reported reached by the true-parents is 10th grade. The occupational status of the true-father is 6.4. Intelligence quotients available for 88 of the mothers range from 50 to 126 with a mean of 86. Dependency, delinquency and social inadequacy are frequent among the true-families.

The mean IQ was 116 at an average age of two years, 112 at four years

and 113 at seven years. Although large individual fluctuations continue to occur, the mean IQ for children tested at ages three through eight has shown a variation of less than three points. Children in the relatively more superior homes have higher mean IQ's than those in less superior homes.

Correlations between child's IQ and education of both true and foster parents are under .25. Correlation between child's and mother's IQ is .36 on third test. Other relationships are of similar magnitude.

This group of children whose true parents may be described as socially, occupationally and intellectually below average, but placed in above average and superior foster homes at an early age, have continued to show above average mental development through the preschool and early elementary years. [15 min., slides.]

3:25 P.M. *A Comparative Study of Braille and Talking Book Reading.*
BERTHOLD LOWENFELD, American Foundation for the Blind, New York City.

A series of test stories adapted from McCall-Crabbs "Standard Test Lessons in Reading" was given to 260 third and fourth grade pupils, another to 221 sixth and seventh grade pupils, in 12 schools for the blind. Stories for the younger group were presented in four different modes: braille, Talking Book straight reading, Talking Book with sound effects, Talking Book with dramatizations; stories for the older group only in braille and Talking Book straight reading. (Talking Books are essentially long-playing phonograph records.) Reading speed was timed and children were asked to select the stories they preferred.

The experiments reveal: (1) third and fourth grade pupils prefer Talking Book stories with sound effects and dramatizations; sixth and seventh grade pupils prefer the male voice; (2) Talking Book reading is about three times as fast as average braille reading (a detailed analysis of braille reading rate is given); (3) comprehension scores (based on the standardized G-scores) show, for third and fourth grades, Talking Book straight reading and Talking Book with sound effects significantly superior to braille reading, with greater differences in the lower IQ groups. Tests for the older group were divided into *story* and *textbook* material. For textbook material braille reading was significantly superior to Talking Book reading. For story material no significant difference is found.

Conclusions: Slowness of braille reading is generally recognized as a factor responsible for the educational retardation of blind children. The Talking Book represents a valuable supplementary reading medium in the education of the blind because of its comparatively high reading speed, its reading appeal, and its comprehensibility. Textbooks, however, should be studied in braille and the teaching of braille should not be neglected, for braille also serves as a medium for written communication. [15 min., records.]

3:45 P.M. *An Analysis of Public School Pupils' Selections of Most Important Persons.* HOWARD L. KINGSLEY, Boston University.

Data were obtained from 637 boys and girls in grades one, five, nine and twelve as to whom they considered the most important person in the world and why. Results were analyzed for sex, grade level, and values reflected in reasons given for the selections. President Roosevelt, parents, mother, and Hitler were mentioned in all grades, but with differences in frequency for the sexes and grades. Other choices show definite grade differences. First graders consider persons important for personal services rendered. Fifth graders rate as important heroes and persons of extraordinary achievement. Ninth graders value world service, superior ability and notable achievement. Twelfth grade pupils place a premium upon such qualities as skill, daring, bravery and power. Growth from self-centered values to appreciation of services to humanity and world influence is indicated. [10 min.]

BUSINESS AND INDUSTRIAL

Wednesday, September 2, 1:15 P.M.

Salle Moderne

DAEL WOLFLE, Chairman

1:15 P.M. *The Psychologist's Contribution to Industrial Morale.* H. MELTZER, Psychological Service Center, St. Louis, Missouri.

Psychologists have made many investigations which are applicable for the study of industrial morale. More recently, however, work on industrial morale done by psychologists has been limited to employer-employee interviews or to the use of questionnaires for the study of employers' attitudes. If industrial morale is comprehensively considered, any contribution that can be used to improve human relations in industry can be legitimately considered a contribution to industrial morale. From this more comprehensive point of view, job analyses set up so that key people and foremen are given opportunities to undergo a learning experience, which can be an aid in improving the understanding of relations between foremen and workers, between key people and foremen, can be advantageously used as a significant contribution to industrial morale. So also can a determination of a wage structure similarly set up. A merit rating system has more often been used in this fashion, and the application of a relevant testing program could also serve that function. All of these can be advantageously used as aids in improving channels of communication in industry and, by so doing, increase effectiveness of production as well as contribute toward the general mental health in industry. Examples from work with personnel in the machine shop as well as key people will be used to illustrate how such aids can contribute towards industrial morale. [15 min.]

1:35 P.M. *An Analysis of the Careers of 150 Executives.* DANIEL STARCH, Daniel Starch and Staff, New York City.

This study is based on the careers of 50 heads of large businesses, 50 executives at the mid-level, and 50 heads of small businesses.

Detailed records were obtained by personal interview regarding father's occupation and economic status, education and quality of school record, extra curricula activities, aim as to occupation, work and earnings during school years, first job and how secured, subsequent jobs secured, factors most important in becoming an executive, qualities executives consider essential, chief shortcomings of executives.

Among top executives, approximately three times as many went to college as in the lower level, three times as many made school records in the top third of their classes, four times as many pursued studies after their regular school years, and more than three times as many found ways to do their jobs better.

In the upper levels, 50% more began to work and earn before the age of 15 than in the lower level, two-thirds earned all or a substantial part of their school and college expenses, and two and a half times as many had records of working hard and long hours as in the lower level.

The largest difference was in the force of inner drive. In the top level, three times as many had a definite aim in life as in the lower level, and six times as many sought and were willing to assume increased responsibility.

In the judgment of executives at all levels, (1) ability to deal with people is given most frequently, namely, by 80% of executives, as essential for competent executives; (2) ability to think, to size up a situation and decide, was mentioned by 75% of the men in the top group; (3) drive courage, willingness to assume responsibility and follow through was mentioned by 55%; and (4) hard work by 32%. [15 min.]

1:55 P.M. *Predicting Success of Encyclopaedia Britannica Salesmen.* CLAUDE EDWARD THOMPSON, Northwestern University.

Twenty-one items of information on 110 salesmen were analyzed, criteria being average earnings and average number of sets sold per period. Weighting each category of a variable separately according to average standing in these criteria provided two separate score tables for age, height, weight, marital status, number dependents, thousands of insurance, years of education, number of clubs, number of offices held, years of selling experience, years on last job, reason left last job, average monthly earnings on last job, and rent or own home. Total weighted scores correlated $+.54 \pm .05$ with sets sold and $+.60 \pm .04$ with average earnings. Filling in the score sheets for 100 randomly selected salesmen not involved in the original data, predicting productivity, and comparing predictions with actual production, placed two-thirds of these men within one standard error of actual and one-third within three standard errors of actual production. [10 min.]

- 2:10 P.M. *Test Predictive of Success in the Occupation of Job-Setter.* ORLO L. CRISSEY, AC Spark Plug Division, General Motors Corporation, Flint, Michigan

The problem of this study is two-fold: (1) selection of tests predictive of success on a job requiring a fairly high degree of mechanical skill, and (2) analysis of the effects of modification of the criterion on the tests selected and on their predictive value.

The subjects consisted of 47 men who were given 10 paper-pencil and apparatus tests, and 70 additional men given a battery of five tests. The criterion of success consisted of the sum of the judgments of supervisors. In the follow-up analysis the raters were interviewed and given specific reference points for the evaluation of the workers with regard to mechanical skill.

In addition to using well known tests of mechanical aptitude, two tests were devised to measure unimanual and bimanual dexterity. These will be described. The Wherry-Doolittle technique, using first the ratings and then the modification of the original criterion, was used in the selection of the test batteries.

It was found that five tests were selected by each of the two analyses. The Minnesota Spatial Relations Test, Crissey Dexterity Test A and Crissey Dexterity Test B appeared in both batteries. The Minnesota Clerical Number Comparison Test and the O'Connor Tweezer Dexterity test in the first battery, were replaced by two additional procedures on the Crissey Dexterity tests in the second battery.

There was a correlation of .84 between scores on the two batteries. Both series of tests have the same predictive value as indicated by validity coefficients of .65 and .66.

Results of tests on 117 men showed a correlation of .59 between battery scores and success as measured by the modified criterion. [15 min., slides.]

- 2:30 P.M. *Interest-Values in Relation to Occupational Attitudes and Vocational Choice.* RHEA RUBISOFF, Jewish Vocational Service and Employment Center, Chicago, Illinois.

Studies employing tests of interest-values have been successful in distinguishing the basic interests of contrasting occupational groups and in groups expressing different occupational preferences.

The questions raised for investigation in the present study are: (1) Does an individual's predominant interest-value coincide with the value or values his vocational choice holds for him, as well as with the character of the vocational choice itself? (2) Do individuals, differentiated according to their predominant interest-values tend to show any consistent pattern in their appraisal of occupations in terms of the values these occupations hold for them?

Ratings on 15 occupations in terms of degree of intellectual stimulation, creative expression, social usefulness, and material success were obtained from 144 high school seniors and college freshmen at the Joliet Township Secondary Schools. Other data included Theoretical, Aesthetic,

Social, and Economic interest-values scores on the Maller-Glaser Interest-Values Inventory, and a statement of vocational choice.

Results obtained from analysis of vocational choice in relation to interest-values scores coincided with those of previous investigators. Incidental findings, not reported in the literature to any appreciable extent, will be presented.

Other results indicated: (1) Differences in appraisal of a number of occupations, namely, the commercial and high pressure occupations, by individuals with high and low interest-values scores; (2) High correlation coefficients between interest-values scores and ratings of occupations in terms of the corresponding values in only a few instances. The direction of the correlations brought out significant trends in interrelationships between interest-values; (3) A tendency to rate the occupations of engineering, medicine, and chemistry higher on some scale of value when these are expressions of vocational choice.

The significance of the major findings and their bearing on vocational guidance will be discussed. [15 min.]

2:50 P.M. *Psychological Examining of Recruits for the U. S. Marine Corps.* DWIGHT W. MILES, and WALTER L. WILKINS, U. S. Marine Corps Base, San Diego.

The organization for psychological examining and psychiatric interview of recruits at the Marine Corps Base, San Diego is described. The purpose of examination and interview is the detection of potential incompetents and mental casualties. The psychologist aids in the identification of those recruits whose general intellectual level is below that necessary for fitness for the Marine Corps, and in the determination of emotional instability, general immaturity of personality, and other conditions possibly predisposing to inadequate adjustment to military life. Reasons for rigorous rejection in the light of the objectives of the Marine Corps are outlined. Results of the administration of certain standard intelligence tests and personality inventories to various groups of recruits are presented. [10 min.]

3:05 P.M. *Limited Service Personnel in the Army: A Program of Training for Service.* MORTON A. SEIDENFELD, Personnel Procedures Section, The Adjutant General's Office.

This paper describes the program of training offered in the Special Training Units of the Army, and the tests used for placement of men in appropriate training classes, tests of achievement, soldier performance rating scales, etc., with some reference also to the methods of rehabilitation, vocational placement and individual adjustment problems as they occur in the armed services and the methods used in dealing with them.

Approximately seven per cent of the men coming into the Army give psychological evidence of either limited opportunity to secure a minimal educational background, inadequate capacity to learn, or of reduced efficiency due to some physical defect. Some of these men are capable of taking regular basic military training but more than half of them require

preliminary instruction in a Special Training Unit before they are ready to take the regular basic course.

A presentation of data covering the types of problems dealt with during a six-month period is included. The results obtained and plans indicating the scope of the program are presented. [15 min.]

MENTAL HYGIENE

Wednesday, September 2, 1:15 P.M.

Parlor A

WALTER R. MILES, Chairman

1:15 P.M. *Some Points of View Preferred by Instructors in Mental Hygiene.* NINA RIDENOUR, New York City Committee on Mental Hygiene of the State Charities Aid Association.

This paper reports part of a larger study entitled "Mental Hygiene Literature: The Preferences of Instructors in Mental Hygiene as Related to Clinical Experience." Results are based on analysis of 282 returned questionnaires, and are of interest: (1) as a technique in the indirect measurement of attitudes; (2) as a survey, showing the preferences of instructors in mental hygiene; (3) as a differential analysis of the relation between types of responses and the clinical experience of instructors.

In the questionnaire, the section on "Preferred Points of View" consisted of 16 statements in which the respondent was asked to indicate a preference on such points as the use of case histories in teaching, preferences in authors and in subjects for a lecture, the importance of psychiatric clinic training for a clinical psychologist, choice of research subjects, and the use of tests in consultation.

Each item was scored "c" for centralist or "p" for peripheralist based on Murray's concept of centralist and peripheralist tendencies as descriptive of two major divisions of psychologists. Results are described in terms of p responses or scores. Median p scores progress consistently from median of 2.3 for the group with the greatest amount of experience in clinics to a median of 6.0 for the group without clinical experience. The critical ratio for average p scores for persons in clinical work and those in academic or non-clinical work is 9.4. Differences between the clinical and the non-clinical groups in the number of extreme scores are marked. There were no reversals of direction on any item. The consistent tendency for groups with clinical experience to give peripheralist responses and for groups without clinical experience to give centralist responses is supported by several other lines of evidence in the full study. [15 min.]

1:35 P.M. *A Method of Training Clinical Psychologists for Child Guidance.* PERCIVAL M. SYMONDS, Teachers College, Columbia University.

For three years the writer has experimented with a method of training clinical psychologists for child guidance by demonstration and observation. The plan has included the use of a one-way vision room and a sound

transmitting system. A mother and child would come in during an afternoon each week for a three hour examination period, which would include a mental, physical and personality examination of the child, and at the same time a social history would be secured from the mother. The three examinations of the child could be observed by students as part of their case work training. The mental examinations would be administered, under direction, by students who had previously received instruction in these methods. Physical examinations were administered by a pediatrician. Personality examinations were administered by the instructor or an assistant. Between examinations there would be staff conferences to compare notes on observations, to suggest hypotheses, and to make proposals for treatment. Later in the year the students would secure the social histories and conduct the personality examinations while being observed through the one-way vision screen.

This method had such advantages as (1) From 30 to 40 children with their mothers would be studied during the year. This permitted the study and comparison of this number of family situations. (2) Students would have an opportunity of learning techniques in an actual clinic setting, first by observation, and later by practice under observation. (3) An opportunity was provided to gain practice in observing and interpreting behavior and to propose hypotheses concerning the etiology of the problems presented.

Following the first examination period and the tentative diagnosis reached in it, treatment or remedial work on the case which might be carried on in some instances for several months would be assigned to one or more of the students who had participated. [15 min.]

1:55 P.M. *Treatment Programs in Training Schools.* STEPHEN HABBE, U. S. Public Health Service.

Training schools can justify themselves finally only as they rehabilitate a fair number of the delinquents entrusted to their care.

The purpose of this investigation was to determine to what extent and in what manner institutional workers, particularly mental hygienists, are carrying on treatment programs designed to prepare their youth for successful community living. Questionnaires were sent to the 160 correctional institutions listed in the last directory of the U. S. Children's Bureau.

The results of the completed questionnaires were analyzed and conclusions drawn. Representative programs are described. Emphasis is placed on activities which seem particularly useful and hopeful. The role of the psychologist in this work is given special attention. [10 min.]

2:10 P.M. *Behavior Patterns of Incurability.* GUSTAVE A. FEINGOLD, Bulkeley High School.

Bulkeley High School is one of the few secondary schools of the country which keeps a cumulative record of pupil behavior. Negative behavior is recorded in terms of demerits accompanied by a description of the anti-social acts.

Prompted by a desire to improve the conduct of the pupils, a study of

the demerits given them by their teachers since the opening of the school in 1926 was made over a period of years. This study disclosed that approximately two per cent of the pupils in the school—mainly boys—account for more than 25 per cent of all the demerits given by the teachers. A further analysis revealed that economic depression tends to depress the spirits of high school students whatever else it may do to the adolescent outside of school. During the years of 1930-39 the average number of demerits received by pupils each year was far less than those received in the boom times of 1929 or 1940. In prosperous times high school pupils are inclined to be more insolent, more truant, to cut classes more frequently, and to disregard authority in general.

The other side of the picture—that which pertains to teachers—is equally as instructive. It was found that the same group of teachers give large numbers of demerits year after year. Men give more demerits than women, and single men far more than married men. Results of this kind are significant since they reveal the weak spots in pupil behavior, the causes of pupil-teacher maladjustments, and illustrate the need of maintaining a scientific system of pupil accounting in the secondary school. It facilitates guidance, character building, and personality development. [15 min.]

2:30 P.M. *A Comparative Study of Mental Functioning Patterns of Problem and Nonproblem Children Seven, Eight, and Nine Years of Age.* MYRTLE LUNEAU PIGNATELLI, Bellevue Psychiatric Hospital, New York City.

The purpose of the investigation is to determine whether problem and nonproblem children seven, eight, and nine years of age differ significantly in mental functioning patterns as determined by examination with the 1916 Stanford-Binet Intelligence Test.

The children studied come from metropolitan New York, and were in most instances in attendance at school. The problem cases were under treatment at Bellevue Mental Hygiene Clinic (New York City). The nonproblem children were not behavior problems or clinical cases. Their records come from the files of the Psycho-Educational Clinic at New York University. There were 303 problem cases and a like number of nonproblem children. The number in each age division was approximately 100.

The groups were matched for median chronological age and median mental age; the median intelligence quotients were within the average range and were likewise comparable.

Stanford-Binet subsidiary tests were grouped into the following categories: language, comprehension, invention and reasoning, comparison and judgment, imagery, information, memory, perception and coordination, and number relations.

The groups were compared in terms of percentage of success in the categories. Three standard errors of the difference was taken to indicate a significant difference between groups.

No significant differences were found. There was a trend in favor of the normal children and least serious problem cases. Chances in 100 for one

group to excel another ranged from 51 to 99 with a median of 70 and a mode of 55.

Standard errors of difference in percentages of success on the categories were in most instances larger than the difference in terms of percentage between groups. [15 min.]

2:50 P.M. *The Relative Effectiveness of Three "Therapy" Procedures on the Reduction of Experimentally Induced Anxiety.* ERNEST A. HAGGARD and HENRY A. MURRAY, Harvard Psychological Clinic.

The study investigated patterns of emotional conditioning and possible differences arising as a result of whether "punishment" is self-administered at the presentation of a signal or comes without warning, and the relative effect of different methods of "therapy" on induced anxiety. The experiment consisted of three 30 minute intervals: (a) an initial conditioning session; (b) a period devoted to one of three therapy procedures: No Therapy (the subject was asked to "forget about it, and relax or walk about"), Experimental Extinction (the first session repeated without shock), and Catharsis (the subject was encouraged to discuss his reactions to the situation, ask questions, etc.); and (c) a final test to measure the effectiveness of the therapy periods in decreasing the reactions set up during the first interval.

In the first and third situations, the subject was instructed to free associate to a series of words, among which were included several associated with the shock, and at the same time to synchronize finger movements in a modified Luria apparatus with his verbal responses. Continuous records were taken of the subject's palmar skin conductance, finger responses and comments and verbal associations to the stimulus words throughout the experiment.

The analysis of variance showed that here (a) Catharsis was the most and No Therapy the least effective procedure in lowering the level of induced arousal, and (b) that recovery following self-administered shock was the more complete. Other indications of the importance of a "well-structured field" in reducing general anxiety will be noted. Also, a group of intercorrelations indicate some general patterns of reactivity which are reflected on the verbal, motor, and autonomic levels as a result of a person's being placed in the stressful situation. The above results cluster about the .05 level of significance. [15 min., slides.]

MOTIVATION

Wednesday, September 2, 1:15 P.M.

Parlor B

EDWARD C. TOLMAN, Chairman

1:15 P.M. *Development of Differential Appetite in the Rat.* LEON FESTINGER, Child Welfare Research Station, University of Iowa.

This study attempts to determine whether deprivation on a given food would result in an increased preference for that food. Ten hooded

rats were given 18 days of forced runs in a single point discrimination apparatus. Six days of free runs were interspersed in this training period. In one alley of the apparatus the animals fed for 10 seconds on one food. In the other alley they fed for a minute on a different food. The forced runs were equally divided between the two alleys.

The results of the days on which free runs were allowed show that this group of rats never ran more than 65% of the time to the place where they received a greater amount of food.

A control group run under exactly the same conditions except that the same food was present in both alleys of the apparatus quickly learn to run to the "more food" almost 100% of the time.

The difference between the control and experimental groups can be explained in terms of increased desirability of the food on which the experimental group experienced "relative deprivation."

The proportion of runs to "more food" in the experimental group can be increased significantly by increasing the hunger at the time of running. This is consistent with the above explanation.

The results of the experiment can be derived formally with the use of some of the theoretical constructs proposed by Dr. Kurt Lewin. [15 min., slides.]

1:35 P.M. *Quantitative Variation of Incentive and Performance in the White Rat.* LEO P. CRESPI, Princeton University.

This study embraces three specific inquiries under the scantily investigated systematic problem of the relationship between magnitude of incentive and performance. (1) What is the relationship between magnitude of incentive and level of performance? (2) What is the relationship between magnitude of incentive and distribution of effort within performance? (3) What are the effects of contrast variation of incentives upon performance?

To minimize learning influences a simple situation was utilized, namely, a 20' linear runway with time measurable at quarter sections.

Incentive values were fourfold increments from a unit base consisting of a 1/50th gram Purina pellet. Six levels were employed: 0, 1, 4, 16, 64, and 256 units. Drive was carefully equalized for the different incentive amount groups by feeding each rat individually up to a constant amount (depending on weight) after each daily run. The experimental design embraced analysis of variance and small sample theory.

From the results of three experiments the answers to the questions posed in this investigation are respectively: (1) a. For a cross section taken when learning changes are substantially over, a flattened sigmoid curve obtains between incentive amount measured logarithmically and level of performance (runway speed) measured arithmetically. b. A very small incentive occasions performance significantly *inferior* to no incentive at all. Qualitative observations suggest a frustration interpretation. (2) For an early block of trials, increases of incentive amount in successive groups are accompanied by progressive changes in speed-of-locomotion gradients from positively accelerated, through linear, to negatively accelerated. Implications are considered for Hull and Drew. (3) Shifting

small incentive groups to medium incentive (16 units) occasions significant "elation" effects over control performance at the medium incentive. Conversely, shifting large incentive groups to medium incentive occasions significant "depression" effects. Implications for motivation theory are offered. [15 min., slides.]

1:55 P.M. *Reward vs. Cul de Sac as Factors in Maze Discrimination.* JOHN P. SEWARD, Connecticut College.

In a previous study it was found that learning of an elevated single-T maze varied with the length of the true path but not with that of the blind. The finding bears directly on the law of effect. Since the effect of the cul may have been obscured, however, by permitting the animal to reach the food on every trial, it was decided to repeat the experiment using the non-correction method.

Three alley mazes were used with true path and blind of 3 and 3 ft., 12 and 3 ft., and 12 and 12 ft., respectively. Six groups of 12 rats each were trained, three by the correction and three by the non-correction method, to a criterion of 9 out of 10 trials without error.

The "correction" groups showed an increase in trials and errors with increase in length of either true path or blind, but the differences were not reliable. In the non-correction groups changes in the same direction were much smaller and statistically negligible. When the pooled results of the two training procedures were compared, however, reliable differences were found. The non-correction group learned in half the average number of trials and errors required by the correction group.

Two conclusions may be drawn: (1) The rate of learning a discrimination depends on the amount of difference between the alternative consequences; hence the cul de sac plays a significant role in maze learning. (2) Since, in the correction method, the inhibiting effect of the cul is more than balanced by the subsequent reinforcement, the reward appears a stronger factor than the cul. [15 min., slides.]

2:15 P.M. *The Relationship between Sexual Status and Selected Features of Behavior in Pairs of Oppositely Sexed Chimpanzees.* WILLIAM D. ORBISON and WILLIAM C. YOUNG, Yale University.

Observations were made of the relationships between sexual status and selected features of behavior such as the willingness to copulate, grooming, play, timidity in the female, indifference, directional movement with respect to the other animal, time spent together and spontaneous horizontal movement. Each of seven adult females was paired in observations made daily throughout a sexual cycle with each of three adult males. The report supplements a preliminary statement on the program of the American Society of Zoölogists, 1941.

Although individual differences were great, phase (follicular and luteal) differences were readily discernible with respect to presentation to the male and copulation. Phase differences in certain other features of behavior were less pronounced but statistically significant. During the follicular phase there was less indifference, the males groomed the females more, the female entered the cage occupied by the male more often,

the animals remained together longer, and the females displayed more spontaneous horizontal movement. No significant phase differences were found in amount of grooming by the female, play, direction of movement by the male, timidity in the female, and horizontal movement by the male.

The conclusion to be drawn from the study is that the chimpanzee with respect to the behavior observed is intermediate between lower mammals and man. To the extent that some features of behavior vary markedly with sexual status the chimpanzee approximates lower species rather than man, to the extent that other features of behavior appear to be less closely associated with sexual status the chimpanzee approximates man. [15 min., slides.]

GENERAL

Thursday, September 3, 9:00 A.M.

Georgian Room

WALTER B. PILLSBURY, Chairman

9:00 A.M. *History of the Psychological Review.* HERBERT S. LANGFELD, Princeton University.

With the January, 1943 number, the *Psychological Review* will begin its fiftieth year. At this half-century milestone it seems fitting to review the history of the publication by describing its birth and development. The chief emphasis of the paper will be upon the major contributions to the journal and their influence on modern psychology. [15 min.]

9:20 A.M. *The Law of Reciprocal Interweaving in the Morphogenesis of Behavior.* ARNOLD GESELL, Yale University.

A preliminary formulation of a Law of Reciprocal Interweaving is offered: *The functional organization of reciprocal relationships between two sets of opposed or counteracting motor systems is ontogenetically manifested by shifting ascendancies of those systems.* Normative, naturalistic, and clinical studies at The Clinic of Child Development have furnished cumulative evidence that this principle of neuro-motor organization operates to a far-reaching extent in the developmental patterning of infant behavior.

These studies include periodic observations and cinema records of prone and supine behavior, prehension, manipulation and laterality trends in a selected group of infants; also an intensive survey of the daily maturation of postures, movements and laterality in infant M.H. The latter survey was made under well standardized conditions in the infant's own home with a high degree of experimental control. Cinema data including 220 consecutive daily recordings between the 15th and 235th day of age were subjected to frame by frame analysis. Quantitative results are presented in graphs and diagrams.

These results in ontogenetic perspective show a more or less rhythmic fluctuation of dominance in counteracting components of the total action system as follows: flexors versus extensors; bilateral versus unilateral

movements; crossed lateral versus homolateral movements; shoulder girdle versus pelvic girdle; convex versus concave trunk alignment; vertical versus horizontal movement planes; symmetry versus asymmetry of motor set.

The reciprocal relationship of flexors and extensors is most fundamental and pervasive. Sherrington's law of *reciprocal innervation* describes a physiological mechanism (the inhibition of one set of muscles while the opposing muscles are in excitation is a condition for effective movement).

The proposed law of *reciprocal interweaving* describes a mode of maturation which is prerequisite for the physiological mechanism of reciprocal innervation. [15 min., slides.]

9:40 A.M. *Coöperation and Violence: Their Psychological Source and Interlacing.* GEORGE M. STRATTON, University of California.

Men are undoubtedly the greatest of all fighters. Likewise they are the greatest of all collaborators. Amicable concerted action appears to have its source in our natural endowment as individuals, quite as does quarreling. And like pugnacity, it is developed in society into an art, but an art pervading and constructive far beyond the art of fighting.

Indeed, coöperation is basic in warfare itself; no great army, navy, or air-force are possible without coöperation within each of them; nor does any of them reach its full effect without coöperation between them, and between them and the nation behind them, the nation itself impossible except as a coöperating body of men.

The development of the individual, so the evidence indicates, requires his coöperation with his fellows from childhood on; only thus does he establish vital membership in his community. Thus he also assists in creating and sustaining the community, which is the greatest stimulant and guide of coöperation among its members, and the greatest of all means against their recurring mutual violence, the greatest disrupter of their coöperation.

These and other features of coöperation suggest the general forms of curative and constructive measures in regard to crime and other kinds of domestic violence, and also in regard to international violence. [15 min.]

10:00 A.M. *Current Psychological Theory in the USSR.* G. S. RAZRAN, Queens College.

Recent Russian textbooks agree in defining psychology as the science of mental life and the concrete conscious act as its fundamental unit. A conscious act is stated to be not merely an act accompanied by consciousness but one which in its very essence is different from a non-conscious act or a mere reaction. Considerable space is allotted to sensation and perception which, after an unequivocal renunciation of Gestalttheorie, are held to be separate and distinct functions. Intelligence testing is severely criticized as a fatalistic philosophy of static norms ignorant of and detached from the dynamics of mental development. Quantitative methods in psychotechnology are encouraged but leanings toward qualitative

approaches of personality are clearly evident. Psychoanalysis is, however, either ignored or disdained. Will, imagination, and thinking are treated at length, the material being often of a historical rather than of an experimental character, as psychology itself is often said to be a bio-historical discipline. All these trends are in marked contrast to psychological theory in the USSR in the twenties and early thirties when psychology was regarded as the science of reflexes (reflexology of Bekhterev), of behavior (Blonski and others), or of reactions (Kornilov). The change is partly due to the publications of the Lenin philosophical notebook in 1933 and the resolutions of the CPCPSU on pedagogical distortions in 1936, but partly also due to the fact that pure behavioristic psychology proved unwieldy and unworkable in the concrete situations with which the Soviet psychologists have been confronted in recent years. In all, current Soviet psychology may probably be best designated as a sort of Neo-Functionalism, although Soviet psychologists will no doubt resent such an appellation. [15 min.]

10:20 A.M. *Revolution in Psychology Number Three; Cortex to Hypothalamus.* EDWIN D. STARBUCK, University of Southern California.

No student of historical movements takes revolutions too seriously. There are, doubtless, definitely marked transitions. It would seem to me no idle fancy to claim that during the last three quarters of a century there have been three pretty definite reconstructions of perspective and restatement of the tasks of psychology.

The first revolution: the birth of a truly scientific psychology, was away from philosophizing *about* the mental life, to the study *at first hand*, empirically, objectively under controlled conditions, aided by experimental techniques, of its nature and its possible improvements. The names of great leaders flock to our minds,—Weber, Fechner, Wundt,—soon their name was legion.

The second revolution: towards an organismic view of mentality after the measuring, dissecting, analyzing had tended to result in a mechanistic view of life and an atomistic conception of nature. Among the techniques for restoring life's wholeness were these: the restoration of the older doctrines of the will; the invention of genes, ids, and other fanciful concepts; the playing up of countless numbers of types of urges and drives; the conjuring with instinct and instincts and many other devices that developed feeling that life is basically urgent, dynamic, and dramatic.

Revolution number three: cortex to hypothalamus. "The hypothalamus," in the words of Foster Kennedy, "is the neuroglandular instrument of vital rhythm." It not only regulates but controls essentially all the basic metabolisms. It has within its keeping "The Wisdom of the Body." The cortex is not seat and center of wisdom. It is like the hands, a sort of prehensile and adaptive mechanism at the service of this deeper lying center of valuation, the hypothalamus. It is the center of gravity of a progressively integrating personality.

This third revolution will radically influence education and training and personal attitudes towards life. [15 min.]

10:40 A.M. *Blackfoot and Western European Cosmology in its Relation to Control of the World.* L. M. HANKS, JR., University of Illinois.

We oppose the thesis that preliterate societies are fearful in their ignorance before an unintelligible world by maintaining that preliterates develop concepts and techniques usually adequate to exercise a satisfactory degree of control of the world.

The Blackfoot world is arbitrarily divided into three categories: (1) parts of the world over which there is direct manipulable control; e.g., breaking a horse; (2) those parts of the world over which control is indirect through human specialists or intervention by a supernatural power at the plea of the individual; e.g. breaking chains with one's hands; (3) those parts of the world over which there is no control; e.g. a diminishing buffalo supply.

The Blackfoot concept of cosmos is then compared for control with the Western European concept. Though the latter includes events that are non-existent to the Blackfoot, the two are in fair agreement on those parts of the world that are directly manipulable and that are uncontrollable. But not on those points that are indirectly controllable. We distinguish the following categories of indirectly controllable events: (1) events that are controlled indirectly by both worlds, though the means of control differ, e.g. certain kinds of sicknesses; (2) events considered uncontrollable in Western European culture over which Blackfoot exercise indirect control; e.g. the weather; (3) events considered uncontrollable by the Blackfoot over which the Western Europeans exercise indirect control; e.g. small pox. The events in these categories are usually deemed non-existent by people of another culture, or the reality of the means of control is doubted. We conclude that in terms of the Blackfoot, little fear exists because they have developed concepts and implements for the control of the cosmos as they perceive it. [15 min., slides.]

11:00 A.M. *Man's Most Creative Years: Then and Now.* HARVEY C. LEHMAN, Ohio University.

It has been suggested that, whereas, in former centuries significant scientific contributions could be made often by youthful investigators who possessed relatively meagre knowledge and background, today it may perhaps be necessary for the potential contributor to possess more extensive experience and a larger fund of knowledge if he is to make contributions of outstanding importance.

As a means of investigating possible age changes that may have been occurring within recent years, the writer compared the ages at which 84 geological contributions were made by 63 geologists born prior to 1800 with the ages at which 99 contributions were made by 65 geologists who were born from 1801 to 1857 inclusive. The data for 14 other groups of creative thinkers were partitioned in similar manner and age-curves were constructed for each of the sub-groups. For physics, geology, invention, mathematics, pathology, classical descriptions of disease, medicine and public hygiene, "best books," economics and political science, education, and philosophy, the more recently-born contributors were found to have accomplished their most creative work at somewhat younger age levels

than was found for the contributors that were born in earlier centuries. For chemistry, oil paintings, and astronomy, no significant age change was evident.

On the whole, there seems to be no factual basis for supposing that the most important creative work of the present day is being done by individuals who are older than the contributors of past centuries have been. If any genuine age change is taking place, the change seems to favor the younger rather than the older age-groups. The foregoing statements do not hold for quantity of output but only for creative work of the highest merit. [15 min., slides.]

11:20 A.M. *Operational Definitions in Social Psychology and the Social Sciences.* ARTHUR JENNESS, University of Nebraska.

The use of operational definitions is pedagogically sound; requiring a person to repeat an operation provides more stimulation than does definition. Operational definition is said to be regression to gesture language, which lacks syntax and is ineffective in communicating abstractions and generalizations. If the syntax of gestural communications is limited, operational definitions obviate some syntactical problems. The Gelb-Goldstein-Weigl-Scheerer Sorting Test requires persons to define concepts operationally; it demonstrates that abstractions can be communicated by performances.

Social psychologists have been slower than some social scientists of offer operational definitions, though Weiss proposed such definitions in social psychology before Bridgman's work was published. Operational definitions may eliminate some of the confusion arising from indiscriminate use of concepts and data drawn from anthropology, sociology and psychology in recent textbooks on social psychology.

Some "operational" sociologists claim that the group is an organism which can be studied by the same techniques used in studying individuals; they have disregarded operational criteria for discriminating groups from organisms. They maintain that their definitions are operational if they specify the mathematical procedures they have employed. Mathematical operations define only mathematical concepts. Mathematical procedures yield numbers, which are "meaningless" unless referred to other concepts which are operationally defined.

One hope for "integrating" the social sciences lies in examining the research techniques of various social scientists. When these are examined, it appears that social scientists have more in common than they realize; at least, many of their operations are common to them all. Examples will be given of (1) operational definitions in social psychology, (2) instances in which equivalent operations yield different verbalizations in several social sciences. [15 min.]

AMERICAN PUBLIC OPINION TODAY

Program Arranged by the Program Committee of the Society
for the Psychological Study of Social Issues

Thursday, September 3, 9:00 A.M.

Salle Moderne

GOODWIN B. WATSON, Chairman

9:00 A.M. *Some Relationships among Attitudes Pertaining to the War.*
ARTHUR W. KORNHAUSER, University of Chicago.

Interviews were conducted with a sample of several hundred Chicago adults to ascertain their attitudes on a variety of questions pertaining to the war. A short-answer question form was used with half the persons, a free-answer type of question with the other half. Information was also recorded concerning sex, age, race, nationality, religion, marital status, schooling, occupation, income class, presidential vote in 1940, and daily papers read. A number of the attitudes expressed on each form are analyzed in relation to one another and in relation to the personal data. Interpretations suggested by these interrelations will be discussed. The two types of question-form are also compared with respect to their usefulness in the attitude survey. [10 min.]

9:15 A.M. *Gauging the Nation's Morale.* JOHN HARDING and HADLEY CANTRIL, Office of Public Opinion Research, Princeton University.

A method devised by the Office of Public Opinion Research for measuring morale on a nation-wide basis will be described. The rationale behind the surveys and the technique used for analysis of the data will be discussed. [10 min.]

9:30 A.M. *A Profile Measure of Morale.* M. ERIK WRIGHT, Ohio State University.

Working on the hypothesis that morale is a multi-dimensional concept and can not be adequately expressed by a single score value, The Morale Committee of the Department of Psychology of the Ohio State University is developing a technique of profile representation of an individual's morale status. On the basis of previous research, and also on the basis of an analysis of current reports, such components of morale as confidence in leadership, enthusiasm for the cause, willingness to sacrifice, time-perspective, feeling of unity, etc., were included in the profile.

A questionnaire consisting of 100 items, based on these various components, was formulated. These questionnaires are being individually administered via student interviewers, who have been given a brief training in interview techniques. A plan for repeated samplings of opinion-reaction to this questionnaire in the various regions is being developed. [10 min.]

UNIVERSITY OF MICHIGAN LIBRARIES

9:45 A.M. *Case Studies of Attitudes Toward the War and Peace.* S. S. SARGENT, Barnard College, Columbia University.

How have individual attitudes toward the war changed since 1938? What made some people isolationist and others interventionist during the period of American neutrality? What kind of people are enthusiastic in their support of the war today, what kind are lukewarm, and what kind, if any, oppose it?

To obtain answers to these and similar questions case studies were made of several dozen representative adults residing in a rather typical agricultural county in the midwest. Each person was interviewed one or more times and was asked a number of questions, roughly divided into three areas: (1) Personal data. (Occupation, schooling, newspapers and magazines read, organizational affiliations, etc.) (2) Attitudes at certain crucial periods. (At the time of the Munich settlement, at the start of the war, when France fell, when Russia was invaded, when Pearl Harbor was bombed, when Singapore fell.) (3) Morale. (General attitude toward our war effort, confidence in our leaders, understanding of war aims, confidence in the accuracy and adequacy of news reports, attitude toward our allies, assurance of military victory by the United Nations, hope of lasting peace following the war.)

Interviewees were also encouraged to express their attitudes qualitatively.

Though in no sense a cross-section of American public opinion, the results reveal significant attitudinal differences and throw light upon their causes and correlates. [15 min.]

10:05 A.M. *The Global Consciousness of the American People.* DANIEL KATZ, Office of Public Opinion Research, Princeton University.

Any practical discussion of post-war reconstruction should take into account the psychological readiness of the people for broad programs of world reorganization. The public opinion polls are furnishing one source of data concerning the global consciousness of the American people. Analysis of these data supply at least partial answers to three types of questions. (1) What are the most common attitudes toward American participation in the post-war world? How much agreement is there about the general goals of a post-war policy? Is there any thinking among the people about the instrumentation to achieve these goals? (2) What are the background correlates of particular attitudes such as post-war isolationism, Anglo-American domination, and internationalism? Are the supporters of a particular doctrine found more frequently in one income group than in another, in one age group, one religious group, or one nationality group? (3) What are the attitudinal correlates of opinions concerning post-war policy? Are the internationally-minded people also those who are more willing to listen to peace offers under certain conditions? Are they more inclined to place the guilt for the war on the German people rather than the German government? Are they more or less pro-labor, more or less fearful of Russian communism than their fellows? [15 min.]

10:35 A.M. *Impact of War on a Nationalistic Frame of Reference.* C. E. OSGOOD, Yale University.

Between February 1940 and March 1942, selected groups of college men have been sampled 8 times and random adult groups three times, to obtain evidence relating to the impact of war on attitude structures. Two forms have been used, one relating to people (Russians, Socialists, Pacifists, etc.) and one to policies (Neutrality, Fighting, 100% Americanism, etc.) In both forms reactions are made on a 7-point gradient the ends of which are defined by positive and negative adjectives (kind-cruel, valuable-worthless, strong-weak).

Two types of analysis will be presented. First, intercorrelations of individual reactions have been computed (college students only) to reveal the presence of patterns in thinking and to give an operational definition of a "frame of reference." Second, median ratings given by the various groups of people for total approval of the attitude objects and for qualitative differences on specific items will be presented. (For example: total approval of Frenchmen declined rapidly during the winter and spring of 1940-41.)

Trends in the data will also be presented with respect to variability of judgments (increase of uniformity in recent months) and changes in patterning (e.g., the changing place of Russians in the frame of reference).

Adult data are compared with those for college subjects, and evidence bearing on stereotyping, polarization and other processes influenced by the war situation will be presented. Significant differences related to age, sex, education and politics are found on several variables. [15 min.]

10:55 A.M. *Peace Plans: Popular Reactions to a Scientific Program.* ROSS STAGNER, Dartmouth College.

If social psychologists have any basis for their claim that their discipline is fundamental to the sciences of human interaction, they should be able to make a significant contribution to the planning of a durable peace. It seems plausible that the failure of the Versailles settlement was primarily psychological. Can psychologists contribute anything toward preventing a repetition of this catastrophe?

It is held that the principles of reward and punishment apply to the behavior of individuals in groups, as much as to their behavior in isolation. Durable peace involves rewarding forms of behavior which tend to keep the peace, and punishing those which increase international friction. Punishment of such actions, however, is not the same thing as revenge (cf. penology).

Keeping the peace will also depend upon effective coöperation on an international scale, first for the allied victorious peoples, and ultimately for all nations. The prospects of coöperation in the immediate future will be a function particularly of attitudes toward Russia and China.

A program was drawn up which was believed to cover the main psychological prerequisites for a durable peace. These were reduced to specific items which could be checked as in a public opinion poll. Early returns from psychologists and others who might be considered as validating judges indicate that the program was correctly prepared.

The same opinion issues have been presented to several hundred adults in different parts of the United States. The results will be analyzed to show the relation between the revenge attitude and hostility toward Russia, the specific "areas" of public opinion in which education is urgently needed on certain topics, and the prospect that a majority of the American public will accept a scientifically planned peace program. [15 min.]

PSYCHOMETRICS

Program Arranged by the Program Committee of the Psychometric Society

Thursday, September 3, 9:00 A.M.

Ball Room Assembly

PAUL HORST, Chairman

9:00 A.M. *A Factor Analytical Approach to Job Families.* CLYDE H. COOMBS, The Adjutant General's Office.

A number of representative occupations were selected from job analysis schedules made available by the USES. The schedules on these occupations were then studied for the purpose of making a listing of the job elements characterizing each occupation. If an element were present in a job, it was given a weighting of one or two depending on the degree of skill, effort, or intensity with which that element entered into job performance. The element was also given a loading from one to three to indicate the relative proportion of that element in the total occupation. The product of the weight and the loading was then taken as the degree to which the job element characterized the job.

The intercorrelations of the type occupations were obtained on the basis of the number of common elements. A group of 20 of the jobs so analyzed have been selected for a preliminary factor analysis. M. W. Richardson of the Adjutant General's Office collaborated in the study. [10 min.]

9:15 A.M. *Experimental and Factorial Study of Perceptual Dynamics.* L. L. THURSTONE, University of Chicago. (By Invitation)

Several hundred subjects were given forty individual laboratory tests of perception. The tests included the following groups: Alternation effects, with the Necker Cube, the Windmill Illusion, Retinal rivalry reversals, and Schmidt apparent movement test; Closure, represented by the Gottschaldt Figures, Hidden Pictures, Kohs Blocks, the Street test, and several others; Reaction time, Perception time, and Judgment time in a number of tests; five optical illusions; several tests of color-form differentiation; several tests of constancy; and several tests of visual-motor coordination. A factor analysis indicates the existence of several distinct functional unities. One of the most prominent factors seems to involve the strength of a configuration associated with the perception of form. Another factor seems to involve the imaginal control of a configuration. It might be described as resistance to Gestaltbindung, flexibility in

manipulating a configuration, or the ability to shake off a set and take a new one. In addition to these two factors, others were found representing reversal effects, optical illusions, reaction time, speed of perception, speed of judgment. So far the factors are given only tentative interpretation, subject to repeated experiments. [25 min., slides.]

9:45 A.M. *Determination of Relative Amounts of Punishment in Learning.*
DONALD A. PETERSON, University of Chicago.

In a learning experiment with rats, two types of jumping apparatus were used: (1) The Lashley apparatus, in which the rat jumps at a stimulus card; if the rat makes an error, it bumps against a locked door and falls into a net below; (2) a modified jumping apparatus in which the rat jumps to a platform in front of a stimulus door and if it is the locked door, the rat corrects the error by running around on a short elevated path to the jumping stand for another attempt. Judged by conventional standards, the first apparatus mentioned (Lashley) gives the rat more punishment per error than does the second apparatus. If this is true, it should be possible to determine these differences in the learning records of the subjects by the use of appropriate methods of analysis of data. A rational mathematical equation developed by Professor Harold O. Gulliksen with parameters for the effect of punishment and reward offered an approach to the problem. An analysis of the individual learning records was made using two special cases of the above mentioned general learning equation. The results, using this technique, indicate that differences between the learning records for the two pieces of apparatus are in the direction to be expected according to conventional standards of punishment (i.e. more punishment per error on the Lashley apparatus). This is a preliminary study and suggests that more extensive work using more precisely defined degrees of punishment might be profitable when treated by rational mathematical methods. [15 min., slides]

10:05 A.M. *The Relation of Psycho-physics and Mental Test Theory.*
M. W. RICHARDSON, The Adjutant General's Office. (By Invitation) [25 min.]

10:35 A.M. *The Factorial Isolation of the Primary Auditory Abilities.*
J. E. KARLIN, University of Chicago.

Psycho-physiological work, based on the physics of sound waves, has experimentally defined a large number of auditory functions. The purpose of this factorial study was to attempt to indicate something of the nature of the relationship between these functions and to evaluate empirically the evidence for their independent functional existence.

Twenty-seven auditory tests were adopted or constructed to cover the conventional factors of pitch, loudness, timbre, time, rhythm, masking, distortion, and memory. In addition, four visual memory tests, an intelligence test, and chronological age were used as variables. Analysis of the inter-correlations yielded eight interpretable factors.

All these factors differed in varying degrees from the conventional factors current in auditory literature, as follows: A Frequency-integration

factor, underlying both pitch and timbre processes; a Loudness factor, defined operationally as a perceptual parameter; an Auditory Integral factor, involving active judgment of primitive auditory mass; an Auditory Resistance factor, calling for the differential repression of incidental sound forms tending to obscure relevant sound forms; a Speed of Closure factor, transcending sense modality; a General Span factor, apparently the central process in span tests of different sense modalities; two further Memory factors. In particular, the Auditory Integral and Auditory Resistance factors are apparently reported for the first time.

The application of factorial methods to auditory phenomena which are experimentally well-known appears to allow of a preciseness and generality of interpretation of fundamental primary factors not often possible with primary cognitive abilities. Conversely, experimental findings on disparate auditory functions achieve greater meaningfulness when their common nature is disclosed. Factorial relations in the auditory field disclose basic psychological and physiological processes not readily obtainable from a consideration of the properties of the physics of sounds. Clinical tests in auditory pathology are also discussed with reference to the primary auditory competencies. [15 min.]

10:55 A.M. *The Fields to Which Factor Analysis Applies.* TRUMAN L. KELLEY, Harvard University.

Factor analysis as a method is a mathematical concept. Like all such there are certain antecedent axioms, postulates and assumptions which must be accepted. When accepted then the mathematical development reveals certain consequences or relationships. If the justification for the procedure does not extend beyond this there is no slightest assurance that the consequences have the slightest bearing upon reality.

When the question of the reality of findings is raised a careful and detailed scrutiny of the field involved is necessary. The field must exist in reality and it demonstrably must be such as to strongly suggest the fitness of the assumptions which are basic to the theory.

From this approach the question is raised as to whether factor analysis is adaptable to fields of economics, sociology, business, physical and biological sciences or whether it is congruent only with psychology where (excepting of course the field of pure mathematics) alone it has functioned. [15 min.]

11:15 A.M. *Psychometrics in the Army.* HARRY W. BUES, Captain, A.G.D., and THOMAS W. HARRELL, 1st Lt., A.G.D., Personnel Procedures Section, The Adjutant General's Office. (By Invitation)

Psychometric procedures in the Army are used in Recruit Reception Centers, by Local Examining Boards for Aviation Cadet Applicants, at Replacement Training Centers, in Divisions and other tactical units. These methods are developed in the Personnel Procedures Section of The Adjutant General's Office, in the Classification Division of the Air Corps Technical Training Command for aviation mechanics and other main-

tenance men, and in the Psychological Division of the Air Surgeon's Office for airplane pilots and the other members of the air crew.

The personnel using psychometric methods are in almost all instances officers or enlisted men. Exceptions are civilian personnel technicians in ground crew replacement training centers. The extent to which members and associates of the American Psychological Association are engaged in various phases of military personnel will be reviewed. Enlisted men are being trained to be classification officers at the Adjutant General's School. Two courses, one for Personnel Consultants, and the other for Personnel Technicians, are of especial interest to psychologists. The teachers, in addition to the AG school faculty, are recruited from the National Research Council's Committee on the Classification of Military Personnel, advisory to the Adjutant General's Office, the staff of the Personnel Procedures Section, and other personnel specialists in Washington.

The activities of the Personnel Procedures Section will be summarized. The question of how they developed and function to improve Army Personnel Classification, will be considered. Among these procedures and the instruments used are: the initial classification techniques used in the thirty-seven Recruit Reception Centers such as the classification interview, a General Classification Test (Four Forms) and a General Mechanical Aptitude Test (Three Forms), Oral Trade Tests; individual tests used to aid in classification of special problem cases; special tests for truck drivers, radio operators, automobile repairmen, electricians, installer-repairmen, and tests for combat intelligence personnel; rating scales, Clerical Aptitude and Non-Language Tests. The most widely used of these psychometric techniques is the General Classification Test. It is composed of verbal, numerical and spatial items arranged in cycle omnibus.

The validity of aptitude tests for predicting training records of Airplane Mechanics and Weather Observers has been reported by Faubion and colleagues. In addition to those two courses, the Classification Division, Air Corps Technical Training Command is concerned with picking students for other courses in the Air Corps Technical Schools.

A paper and pencil personality test has been studied but its validity in picking out guard cases and men in the neuro-psychiatric ward has not been sufficient to justify its use. Interest inventories also have been tried. One may be used as an aid for selecting technical instructors. As a rule however, the interview and questionnaire are used in determining interests or preferences.

Recently, emphasis has been placed on the selection and classification of Officers. An Officer's Qualification Card, similar to the one for Enlisted Men, has been instituted. Studies of the mental and personality traits contributing to the success of men in officer training will be described. [25 min.]

UNIVERSITY OF MICHIGAN LIBRARIES

MEASURES OF PERSONALITY

Thursday, September 3, 9:00 A.M.

Parlor A

MARK A. MAY, Chairman

9:00 A.M. "*Graphometry*": *A New Diagnostic Method*. WERNER WOLFF, Vassar College.

A relationship between expressive movement and personality was studied, with graphic movements considered as a projection of expressive movement upon paper. A consistency of the same graphic pattern under different conditions of writing would, it was thought, indicate that graphic forms are not a product of chance, but rather of inner-personal determinants.

Twenty subjects were required to draw in three sessions at three day intervals a set of six simple geometrical forms with eyes closed using their right hand, then their left, and both procedures repeated with eyes open. In the third session consistencies of forms defined in terms of their length were demonstrated to the subject who then was asked to repeat the whole series with the instruction to break down these patterns.

In spite of the different and unaccustomed conditions an average proportion of forms remained consistent in 50% of the cases in session I and II, and in 59% in session III, where consistency appeared regardless of deliberate attempts to alter it.

Data suggesting consistencies of graphic movements throughout life were found in the measurement of signatures of about 100 famous people at various stages of their lives and in drawings of preschool-children, indicating that a unit and organization of movement seems to exist independent of training.

The consistency of proportions in graphic movements suggests diagnostic application of Graphometry. Selecting documented signatures made in a state of elation and of depression there was found a regular increase of proportions in elation, a decrease in depression, a fluctuation which does not appear in a normal state of mind, suggesting a relationship between graphic movement, its proportions, its degree of consistency and personality. Forgeries may be detected by measurements.

Cases discussed will be illustrated by projections. [15 min., slides.]

9:20 A.M. *An Experimental Study of the Relationship of Frustration Reaction, Ego-Defense, and Hypnotizability*. SEYMOUR SARASON and SAUL ROSENZWEIG, Clark University.

The purpose of this study was to investigate Rosenzweig's triadic hypothesis that hypnotizability as a personality trait is to be found in positive association with repression as a mechanism of ego-defense and impunitiveness as an immediate reaction to frustration. A projective test was constructed for evaluating frustration reactions as extrapunitive, intropunitive, and impunitive. Repression was estimated from the recall of a set of 15 jig-saw picture puzzles, on half of which the subject had

been deliberately failed, on the other half of which he had been allowed to succeed. The recall was asked for several minutes after the administration of the last puzzle. Hypnotizability was measured by a standard technique developed at the Harvard Psychological Clinic. A short form of the Thematic Apperception Test was used as a means of gauging the subject's reactions to the hypnosis. Twenty college students comprised the chief experimental group.

A correlation of .54 was found between repression and impunitiveness, .66 between repression and hypnotizability, and .78 between impunitiveness and hypnotizability. When those subjects who did not show mnemonic repressions but recalled instead a preponderance of failed puzzles were compared with those who did show repression, it was found that the former were significantly more extrapunitive and less hypnotizable. These results tend to corroborate the triadic hypothesis. [15 min.]

9:40 A.M. *Level of Aspiration as Ego Defense*. ROBERT R. HOLT, Harvard Psychological Clinic.

The hypothesis was advanced that levels of aspiration are to be interpreted in terms of defense by the Ego of its self esteem, and thus can be fully understood only by exhaustive study of a few cases.

Accordingly, the subjects who were studied intensively by the other experimenters at the Clinic were given two sessions of tests, purportedly of Mental Efficiency and of Mechanical Ability. Previously, and for another experimenter, they had rated themselves on these among a number of other abilities, ranking them in order of personal importance. Before starting the session, they were asked to rate themselves on the ability to be tested, and before each particular test, the subjects predicted their performance on it as a whole. After the first three of the 13 trials of each test, which were scored in every case close to the average, the subjects predicted the best and worst scores they expected to get during the remaining trials. Again, after five more trials, of "success," "failure," or "variable" performance, similar predictions were made. Each subject experienced each of these conditions in each session. Scores were reported after every trial in terms of percentile standing. This elicited vivid success and failure experiences in the subjects. Finally, the subjects were asked which had been the best test of the tested ability, invited to comment on the tests and to explain their failure. A week later, they re-rated themselves on the abilities for another experimenter, re-ranking them in terms of personal importance.

Consistent patterns of defense were established in terms of discrepancies between predictions and performances, shifts in estimates of ability, ranges of aspiration, and shifts in "personal importance" of abilities. These patterns were validated by the case studies. Results are discussed in terms of the meaning of the level of aspiration to the total personality. [15 min.]

10:00 A.M. *Sociometric Measurement of Personality*. HELEN HALL JENNINGS, Teachers College, Columbia University.

The research examines the same individual's behavior in choice and rejection of others at two points in time eight months distant and further

investigates personality- and non-personality-factors which might bear upon this problem. The subjects were the population of the New York State Training School for Girls. The procedure consisted in sociometric testing and re-testing based on unlimited expression of choice and rejection on all criteria for association in the community; in addition, social contact test results were secured.

Emotional expansiveness, as measured by the extent of positive choice expressed for other persons, shows only a small correlation with social expansiveness, as measured by the extent of the individual's social contact range. The relationship is somewhat greater between the individual's social expansiveness and the extent of positive choice expressed towards him, but after an interim of eight months no correlation appears. Social expansiveness appears related to length of residence and to intelligence but emotional expansiveness shows no correlation with these variables.

The individual is found to exercise choice and rejection independently of the manner in which the situation in which he is structured in respect to him; individuals in isolated (unchosen) or in leader (over-chosen) positions show choice behavior characteristic for them as individuals. The individual is found to vary from time to time only *within a range* of expression typical for him, his "repertoire" for reacting by choice or rejection towards others.

Certain behavior characteristics differentiate between different positions of choice-status; impersonal factors, as length of residence, chronological age, etc., do not.

Both isolation and leadership appear as phenomena which arise out of individual differences in inter-personal capacity for participation with others, differences which are revealed when the personalities of isolates and leaders are studied. [15 min.]

10:20 A.M. *Ratings of Personality Traits in a Clinical Situation as Indices of School Adjustment.* MAX DEUTSCHER, Yale University.

This study attempted to determine the reliability with which observations of test behavior might be made and their significance for the prediction of specific kinds of behavior in the classroom and as indices of adjustment to the social standards of the classroom.

A survey of the literature and a questionnaire survey of practice yielded items recommended by test standardizers for clinicians to observe and the observations which practicing clinicians made. Twenty-seven scales for the observation of behavior were assembled from these sources and used in a typical clinical situation.

The group used for the experiment consisted of 100 eighth grade boys ranging from borderline to superior intelligence. Information was available on their behavior during the school day and their adjustment in the classroom.

The Haggerty-Olson-Wickman Behavior Rating Schedule was used in securing the criteria for behavior and adjustment. They were obtained from three teachers' rating on this schedule. The reliability of these ratings was .79.

The reliability of each of the twenty-seven clinical scales was deter-

mined by means of the correlation of observations of an independent observer and the examiner. Reliability coefficients ranged from .33 to .89 with a mean at .65 in a group of boys.

The significance of the observations for the prediction of specific kinds of behavior in the classroom was shown to be low. Sixteen items showed significant coefficients. The behavior in the area of intraversion-extraversion proved to be most predictable. Mood was predicted best of all areas.

These observations proved to predict adjustment in the classroom significantly. Eighteen items were significant for this prediction. Each item was assigned a score in proportion to its demonstrated prediction of adjustment. These scores, summed and correlated with the criterion score, gave a coefficient of .72; corrected for attenuation it became .89. [15 min.]

10:40 A.M. *The Relation Between Physique and Measures of Intelligence, Temperament, and Personality in Superior Adolescent Boys.* DONALD W. FISKE, Harvard Psychological Clinic.

Using preparatory school boys as subjects ($N=91$ to 182), relations were sought between various psychological measures and body build (as measured by Sheldon's somatotyping technique). The subjects were grouped on the basis of physique (somatotype), consideration being given both to strength in each of Sheldon's primary components of physique and to pattern of component dominance. The analysis of variance was employed to test whether each variable was related to somatotype group.

Intelligence was measured by three group tests (Modified Alpha, ACE Psychological Examination, and a vocabulary test), one test of creative intellectual functioning, and scholastic achievement. Motor performance was measured by motor speed, accuracy, and point pressure on the Detroit Motor Speed and Precision Test. Handwriting samples were also used. None of these measures was significantly associated with somatotype group.

The number of significant findings on variables from a rating scale, from the Bernreuter Personality Inventory, and from a specially devised ink-blot test was negligible. On an interest questionnaire, however, several items were related to somatotype group; many of these can be explained in terms of the fitness of particular physiques for certain activities.

Supplementary measures, including electroencephalograms, basal metabolic rates and respiration data, together with groupings based on personality adjustment and on the presence of speech problems, showed the same absence of significant relationship.

Predictions based on the various hypotheses of Kretschmer, Cabot, and Sheldon were not born out by the few positive findings. The proportion of significant correlations in this research, employing relatively refined physical classifications, is approximately that found in earlier studies using crude indices or coarse types. It appears, therefore, that in studies of adolescent personality exact somatotypes are not likely to prove more valuable than mere rough impressions of physique. [15 min.]

11:00 A.M. *Anticipation of Future Income by College Students and the Implications for Adjustment.* ARNOLD THOMSEN, Elmo Roper, Market Research, New York City.

This report developed from the hypothesis that in this culture adolescents characteristically set their goals higher than there is any likelihood of their reaching. To test this hypothesis in the field of vocational expectations, 158 college students in the second semester classes of psychology were assigned the task of writing a term paper on their vocational choice. The paper was to be a thorough study of the field they wished to enter, with special emphasis on personality factors. The assignment included this question: "What yearly income do you expect 10 years after you graduate; what income 20 years after?"

The mean income expected by men in 20 years was about twice as much as the income received today by college men who graduated 20 years ago. Women's mean income expectations, though lower than men's were still considerably above average incomes received today by women who graduated 20 years ago. Figures will be shown broken down by occupational expectation and by actual occupational incomes.

Implications of this expectation-achievement discrepancy for future vocational and general adjustment will be discussed. As the individual with a high level of aspiration matures, three possibilities are open: (a) he works hard, etc., and achievements equal expectations; (b) he revises his expectations downward, "accepts the universe"; (c) he keeps his high expectations, but blames the world for his failures. The third alternative may lead to paranoid trends or paranoia. Alfred Korzybski's general semantic theory of happiness (minimum expectations rather than maximum) will be presented briefly. [15 min.]

ABNORMAL

Thursday, September 3, 9:00 A.M.

Parlor B

ROBERT H. SEASHORE, Chairman

9:00 A.M. *The Validity of the Concept of Psychopathic Personality.* HENRY J. WEGROCKI, Saint Elizabeths Hospital.

The concept of psychopathic personality is an ill-defined and very broad one. There is a strong tendency to use "psychopathic personality" as an exclusion diagnosis in those cases where a patient cannot be readily placed into the category of psychosis, neurosis or mental deficiency. This is particularly so if the patient has manifested striking anti-social behavior. A close analysis of the histories of thirty-five male patients diagnosed as "psychopathic personality without psychosis" reveals that the majority show a developmental picture which, psychodynamically considered, is that of a neurosis. This takes the form of a paraphiliac, alcoholic, hysterical or anxiety neurosis. In all these cases psychopathy represents the neurotic resolution of a personality conflict. Somewhat less numerous are those patients who are essentially schizoid or cyclothymic in

make-up and show in their behavior the larval phases of a schizophrenic or manic-depressive psychosis. Least numerous are those individuals, not showing schizoid or cyclothymic coloring, in whom diligent search reveals little if anything of psychogenic significance with respect to their psychopathy. This last group is the only one to whom the term "psychopathic personality" can with some validity be applied. Case material in illustration of the above and a suggested narrower and more precise definition of "psychopathic personality" are discussed. [15 min.]

9:20 A.M. *Rigidity*. KURT GOLDSTEIN, Tufts College Medical School.

In normal behavior every performance is executed in "adequate" time. Shifts in performances are made as required by the task. Rigidity means abnormal fixation upon the performance in action and is frequently pathological.

We may distinguish primary and secondary rigidity.

Primary rigidity involves sequelae of an abnormality of the "Einstellung" mechanism, most frequently observed in lesions of the subcortical ganglia. The performance in action immediately becomes so rigid that responses to extraneous stimuli cease.

Secondary rigidity is due to a primary defect of the higher mental processes; in cortical damage and cortical malformations, such as feeble-mindedness. Only tasks beyond the individual's capabilities are affected. Feeble-minded children show rigidity when confronted by a task requiring the abstract attitude which in their cases is impaired.

The following theoretical interpretation will be offered. 1. Rigidity occurs when an organism is unable to come to terms with "its" environment in an "adequate" way. It is a means of protecting the individual from catastrophic conditions. 2. It is one type of reaction to a situation to which the individual is inadequate. Other types of reactions result in catastrophic conditions and distractability. Rigidity is a consequence of a mental deficiency, especially the impairment of the abstract attitude.

Normal individuals may also exhibit rigidity under certain conditions, namely, in performances beyond their scope. The implications of this theory for education of feeble-minded children will be discussed. [15 min.]

9:40 A.M. *The Structure of Agnostic Symptoms in a Case of Post-Traumatic Dementia*. E. HANFMANN, Mount Holyoke College, and M. RICKERS-OVSIANKINA, Wheaton College.

A patient who showed agnostic symptoms as part of the picture of a post-traumatic dementia was studied through prolonged observations in free and controlled situations. One of the purposes of this study was to discover the factors determining correct recognition of objects in some situations and lack of recognition in others. It was found that living beings in action were better recognized by the patient than inanimate objects. Real objects which the patient was permitted to manipulate and use were recognized more readily than the pictured ones. Objects presented in an appropriate setting (fork with plate, pencil with paper) had an advantage over the same objects presented in isolation. Recognition was always preceded or accompanied by real or imaginary acting out of a

situation relating to the object involved (eating, writing, etc.). Recognition of colors was extremely uncertain and faulty. Agnostic phenomena were found not to be limited to any one sensory field.

From these and other observations it was concluded that the patient was unable to recognize objects *in abstracto*, apart from the concrete action situation in which they could be meaningfully used. The agnostic symptoms were thus found to have the same basic structure as the aphasic symptoms and the disturbances of performance found in patients with brain lesions, and to reflect the general concretization of behavior which Goldstein found to be typical of these patients. Dr. Goldstein has coöperated in this study. [15 min.]

10:00 A.M. *A Case of Primary and Secondary Personalities Showing Co-operation Toward Mutual Goals.* BARBARA S. BURKS, Columbia University.

William James, shortly before the turn of the century, had reached the conviction, on the basis of available data, of the genuineness of parapsychological phenomena. Satisfactory explanations, however, might not be forthcoming for "50 or 100 years," and would necessarily rest upon further facts.

A case of dual personality has been studied which appears more than previously reported cases to offer means to an explanation of the nature of parapsychological phenomena. The secondary personality (S) is "co-conscious" in the sense used by Morton Prince and others. The primary personality (P) is completely accessible to S, but S is accessible to P only through automatic writing, drawings, speech, whistling, and expressive movements. S corresponds in structure rather closely to the classical conception of the subconscious mind.

The speech of S has a somewhat different cadence from the ordinary speech of P; the drawings are symbolic, and have a far higher artistic merit than anything P has ever produced. Poems and other productions of S likewise have more merit than P's productions.

S occasionally seeks permission to produce automatisms, but seldom intrudes without invitation, and only in a situation where important goals are at stake, and where P is in danger of failing. On the other hand, S comes willingly on request, converses entertainingly with P or with others, and accepts work assignments from P which result in a large increase in P's apparent efficiency. Aside from successful writing and problem-solving, S voluntarily undertook personality studies of two of P's friends, the studies being in a Freudian framework, and resulting in demonstrable therapeutic effects. S has been a willing subject for experiments in (1) telepathy; (2) personality structure; (3) effects of training on personality. [15 min., slides.]

10:20 A.M. *An Experimental Study of the Drawing Behavior of Adult Psychotics in Comparison with that of a Normal Control Group.* ANNE ANASTASI, Queens College, and JOHN P. FOLEY, JR., The George Washington University.

The present study is the third part of a project on the artistic behavior

of the insane conducted by the writers under the auspices of the Columbia University Council for Research in the Social Sciences. The following four drawings were obtained from each subject, in the order given: *free choice*, representation of *danger*, drawing of a *man*, and *copy* of a stylized floral design. Each subject was tested individually, being given standard drawing paper, pencil, eraser, crayons, and scrap paper, in standard arrangement. A record was kept of time as well as subject's comments and behavior during the drawing. A total of 680 subjects were employed, including 340 psychotics in 5 institutions (170 men and 170 women) and 340 normal control subjects (170 men and 170 women) equated with the psychotic group in age, marital status, educational and occupational level, artistic training and experience, geographical distribution, and national background.

The drawings were classified according to subject matter and technique and were also examined with reference to a long list of special characteristics assembled from the literature on insane art and from the writers' previous investigation on spontaneous drawings by psychotics. Among such special characteristics are to be found: irregularities of procedure, coloring peculiarities, excessive use of symbolism, incoherence of parts, disproportions, perspective disorders, over-meticulousness, perseverative elaborations, stereotypy, "blotting over," "horror vacui," intellectual realism, stylization, anthropomorphism, micropsia, and macropsia, chain drawings and overlapping figures, and the inclusion of writing. Although the majority of psychotic drawings were not clearly differentiable from those of the control group, statistically reliable differences between the drawings of the two groups were found in a number of specific categories. [15 min.]

10:40 A.M. *Changes in Orientation for Time, Place and Person in Psychopathological Conditions.* ELAINE F. KINDER, Rockland State Hospital, Orangeburg, N. Y.

In the field of psychopathology and individual's ability to recognize and accept socially current standards of time, place and personal entity or status becomes an important criterion of psychological integrity. It is the thesis of this paper that studies of changes in the orientation processes, especially of losses and recovery in specific types of orientation, as these occur in patients suffering from psychopathological conditions, will contribute to our understanding of the psychological phenomena underlying what may be called the "integration" of an individual's mental functioning. Clinical material and data from a preliminary study of changes in orientation found in a group of children hospitalized over a period of years for extreme behavior disorders and showing changes in the balance between predominantly subjectively determined and predominantly objectively determined experience (probably somewhat comparable to the "inner living" and "outer living" of the Rorschach interpretation) will be presented in relation to a program for the systematic investigation of problems within this field. [15 min., slides]

11:00 A.M. *The Diagnostic and Prognostic Significance of the Shut-in Personality Type.* PHYLLIS WITTMAN, and D. LOUIS STEINBERG, Elgin State Hospital.

The shut-in personality type is one in which the psychotic picture is simply an exaggeration of the peculiar type of personality shown throughout childhood. The individual has had few social contacts with others even as a child and is shy, sensitive and withdrawn, or cold, anaesthetic and reserved often with a degree of apathy and indifference frequently mistaken for dullness.

This concept, as described by Adolph Meyer and titled by Hoch, has been thought to have both diagnostic and prognostic significance. However, no objective verification of its validity has been made.

For this study records of the Child Study Bureau of the Chicago Public Schools, made from 10 to 25 years earlier, and before any question of psychosis had arisen, were found on approximately eight percent of the Elgin State Hospital patients checked.

The subjects were divided into two groups: *A*, those who had not been referred during their school years to the Child Study Bureau and, *B*, those whose adjustment or behavior had been such that they were referred. The two groups were then sub-divided according to their present psychotic picture.

These sub-groups were compared with each other on the data gleaned from Child Study Bureau and on the social service history, mental examination, and reports of present status for the patient in the State Hospital.

Differences between the groups are evaluated and the significance of the results for diagnosis, prognosis and prophylaxis discussed. Meyer's concept of "shut-in" personality type as of both diagnostic and prognostic significance is verified as well as corroboration of Langfeldt's theory that the all-inclusive diagnosis of dementia praecox includes both cases of "process" (apparently constitutional) schizophrenia and "schizophreniforme" cases. [15 min.]

PSYCHO-PHYSIOLOGICAL APPROACHES TO THE PROBLEMS OF MENTAL DISORDER

Friday, September 4, 9:00 A.M.

Georgian Room

KNIGHT DUNLAP, Chairman

S. E. BARRERA, College of Physicians and Surgeons, New York, *Shock Therapy*

LOUIS W. MAX, New York University, *Electroencephalic Contributions*

NORMAN R. F. MAIER, University of Michigan, *Experimental Convulsion Phenomena*

CARLYLE JACOBSON, Washington University School of Medicine, *The Approach Through Brain Surgery*

ABRAHAM MYERSON, Tufts College, *Recent Pharmacological Advances*

HOWARD S. LIDDELL, Cornell University, *The Conditioned Reaction Approach*

SOCIAL

Friday, September 4, 9:00 A.M.

Salle Moderne

CLARENCE H. GRAHAM, Chairman

9:00 A.M. *The Beginning Course as a Laboratory in Applied Social Psychology.* S. L. PRESSEY, Ohio State University.

Some students are so unkind as to expect from courses in psychology not only information about the subject of human nature but also help in improving their own human relationships. The paper reports an experiment to see how much this last might be done.

The experiment (with over 300 students) involved the following special features: Students were kept together in the same sections of about 30 each, with the same instructor, for two quarters. Each instructor was given extensive personnel data about each student and was expected to make an intensive study of each, over the two quarters. Class procedure was very informal, involving social group projects, field trips, and social occasions such as picnics and an occasional meal together in a college cafeteria. Amount and nature of acquaintance among the students, status, and groupings were investigated. A variety of devices for dealing with problems were tried. At the end of the two quarters comparison was made with conventional classes as regards social acceptance within the group, total number of campus friends, improvement of maladjusted cases, and liking for psychology, as well as grades on tests and amount of voluntary work done extra. [15 min.]

9:20 A.M. *Classroom and Clinical Measurement of Social Maturation.*

MAX L. HUTT, The Child Consultation Service, Brooklyn, New York.

This is a study of the growth and fluctuation in specified aspects of social behavior over a two year period. It is based upon continuous, intensive observations over this period and includes the total population of a progressive, private school in Brooklyn (The Community School). Clinical examinations of all of these pupils were administered at the beginning and the end of the investigational period. Case records from the school files, containing periodic observations by teachers and Director, as well as standardized test data on school achievement, were available. There were also Stanford-Binet I.Q.'s for all pupils.

The Winnetka Rating Scale for School Behavior and Attitudes was applied at 10 observational periods by the class teachers. Independent observations were made during the same periods by trained, graduate psychology students. The Vineland Scale of Social Maturity was administered at the initial and terminal periods by graduate students who were completing their training in clinical psychology.

The data were analyzed to determine whether: (1) Classroom observations by teachers and/or outside observers yield information about

pupil maturation in social behavior which is comparable to clinically derived data; (2) Measurement techniques yield information which is comparable to teachers' case records; (3) Social behavior (as measured by the Winnetka Scale) is unitary or specific; (4) Increments in growth of the several aspects of social behavior measured follow any common type of growth curve; (5) Growth in social behavior is saltatory or continuous; variable or even; (6) Social behavior is related to general intelligence, school accomplishment or social adjustment.

The importance of the implications of this and previous studies for school and clinical practice is evaluated and discussed. [15 min.]

9:40 A.M. *Goal-Motivated Versus Frustration-Instigated Social Movements.* NORMAN R. F. MAIER, University of Michigan.

Aggression, regression and fixation have been shown to be characteristic features of behavior arising as a consequence of frustration, whereas superior performance in problem situations is associated with good motivation. To fully understand the determiners of action, the relation between frustration and motivation must be systematically analyzed. Some experimental evidence supports the view that frustration and motivation are separate processes and that each is a determiner of action.

If we accept the above qualitative distinction, it follows that social organization may depend upon two different psychological mechanisms. Social movements demand unity of action in a group of individuals. Common goals may serve as one type of unifying factor and common aggression may serve as the other. The two types of unity being based on different psychological mechanisms, we may expect their resulting social movements to display different symptoms.

Since aggression, regression and fixation are associated with frustration, we should expect frustration-instigated movements to be destructive, irrational and stereotyped. The leader will determine the mode of aggression and as long as this avenue of behavior is open he can control the unity. Because frustration does not demand some specific response almost any aggressive behavior will serve to synchronize action. This fact makes it relatively simple to organize frustrated individuals.

Social movements organized around common goals will be constructive and rational. The leader will represent rather than dominate the group. Unified action will be difficult to achieve since the choices will be made by the group. This consideration for differences in choices complicates the social structure and permits greater satisfaction at the expense of forcefulness.

Because of basic differences in group structure, these two types of social movements will have difficulty in understanding each other. [15 min.]

10:00 A.M. *Understanding versus Suggestion in the Social Field.* S. E. ASCH, Brooklyn College.

Modern social psychology has stressed mainly the role of *external* influences in group life, such as suggestion, prestige, imitation, etc. On the other hand, the role of the situation itself, of its structure, the possibilities for understanding it and for dealing with it reasonably, have

been gravely neglected or denied. This one-sided emphasis has, in addition to other consequences, also hampered the careful examination of psychological processes in social situations.

Experiments will be reported dealing with the operations of understanding and suggestion in groups. Situations were studied of varying degrees of structural clearness. Typically the experiments were done in groups of about 10 subjects, of whom all but one—the critical, naïve subject—coöperated with the experimenter. The critical subject was faced directly and immediately by the unanimous—and often false—judgments of a surrounding group of equals before publicly stating his own judgments. Parallel series of experiments were done with tasks of perceptual and social content.

(1) Despite extreme counter-forces from the social field in the clearly structured situations the trend to deal in accordance with the character of the situation prevailed. Quantitative and qualitative results show little evidence of suggestion or imitation. (2) In situations of intermediate clearness the critical subjects did move toward the group response, but the shift occurred within a "region of reasonable variation," the limits of which were quantitatively determined in independent experiments freed of group influence. (3) The results of the extremely unclear situations give superficially the appearance of suggestibility of the classical kind, but closer scrutiny shows that the behavior is guided by an intensely active search for reasonable, objective understanding.

These experiments were done during the year 1941-1942 while the writer was a Fellow of the John Simon Guggenheim Foundation. [15 min.]

10:20 A.M. *Attitudes Toward Social Change of Gallup Poll Youth and Adult Populations.* DONALD H. DIETRICH, Ohio State University.

The problem was to ascertain the responses of two age groups: Youth and Adult to questions pertaining to social changes such as public ownership and labor regulations; to investigate relationships between individual's response and his economic status; sex; geographic location; and degree of urbanization.

Responses to 80 Gallup Poll questions were obtained and Hollerith comparisons were made. Significant differences between responses of various sub-groups at the 10 and 5% levels were established.

Results may be summarized as follows: 1. There are many significant differences between Adult sub-groups; few between Youth. 2. More significant differences occur between Adult economic status sub-groups than any other Adult category. 3. Sub-group responses of geographic location, rural-urban, and economic status reflect those groups' self-interest. 4. Low economic status tends to be correlated with size of "no-opinion" vote. [10 min., slides.]

10:35 A.M. *A Comparison of Racial Stereotypes of Negro College Students in 1935 and in 1942.* MAX MEENES, Howard University.

At Howard University the Katz and Braly list of 84 adjectives was given to 160 students in December 1935 and to 137 students in February 1942. These subjects were asked to describe 10 racial groups with appropriate adjectives from the list. Assuming that the Howard students of

1935 and of 1942 are comparable, the results may throw some light on the effects of recent events and of propaganda on racial attitudes.

The 1942 stereotypes of the English, Jews, Negroes, and Irish are essentially the same as those obtained in 1935. "Boastful, deceitful, and ostentatious" which appear in the 1935 stereotype of White Americans are replaced in 1942 by "sportsmanlike, scientifically minded, and individualistic." In 1935 the Chinese were considered "sly, treacherous, and revengeful," but in 1942 these terms were used instead to characterize the Japanese. The Japanese were considered "intelligent and alert" in 1935 and likewise in 1942, though by fewer subjects. The Germans were regarded chiefly as "scientifically minded and intelligent" in both samples, but in 1942 they were also characterized as "revengeful and cruel." The 1935 description of the Italians, made when the invasion of Ethiopia was in progress, included "revengeful and treacherous"; these terms did not appear in the 1942 stereotype. In neither year was the picture of the Italians flattering.

There is evidence that the subjects characterized "races in general" and did not think in terms of specific representatives of these races when making their descriptions. [15 min.]

10:55 A.M. *Psychological Studies of Inflation and Inflationary Expectations.* GEORGE KATONA, New School for Social Research, New York.

Inflation, a sustained and general upward movement of prices, is not an automatic effect of economic factors, such as excess purchasing power. It takes men and their decisions and actions to put the mechanism of inflation into operation. Psychologists may therefore contribute to the study of inflation and the fight against inflation.

Whether a rise in price of a commodity will be followed by increase or decrease of demand for it depends on what consumers expect of subsequent developments. Laboratory experiments concerning the origin and strength of expectations seem to show: a) Reiterations of statistical data, or categorical statements and pronouncements (e.g., that shoe prices will remain stable or will go up), create relatively weak expectations. b) Presentation of comprehensive context with a clear and consistent structure, from which the subjects gain an understanding of why prices may advance or remain stable, influences the attitudes and expectations to a much greater extent.

In line with psychological findings that the same stimulus pattern may be perceived in different ways and thus elicit different responses, it could be shown that the understanding of, and the response to, the same Government measure, for example a price-fixing order, may have different and even contradictory forms, depending on its frame of reference. In establishing one or the other framework, and in explaining Governmental regulations, psychological factors (clear organization, grouping, distribution of emphasis) are of great importance.

Analysis of recent developments seem to confirm the results of these investigations. Inflation, of course, cannot be checked by psychological means alone since economic facts and measures form the foundation of the

framework for our thinking. But the economic measures should be supplemented by giving a clear orientation for their understanding. [15 min.]

11:15 A.M. *Methodologies in the Study of Musical Eminence*. PAUL R. FARNSWORTH, Stanford University.

The two major ways of measuring eminence stereotypes have been the pooling of ballots and the encyclopedia-space method. In the present study of musical eminence these have been compared and found to agree to the extent of .55 to .80. A third method, that of tabulating page mentions, has been tested in the analysis of histories of music and found to agree fairly well with the two older procedures (.55 to .88). All three methodologies appear to have good reliabilities (.81 to .97). Eighty-nine musicologists and about 500 fairly typical liberal-arts students have been found to agree in their balloting to the extent of approximately .70.

The encyclopedia-space and page-mention procedures have been employed in an attempt to study changes in musical eminence since 1900. For this portion of the study 11 musical encyclopedias, 5 general encyclopedias and 28 histories of music have been analyzed. While in some instances all the musicians have been studied, for the most part the lists were composed of 92 names. J. S. Bach is shown to have received earlier acclaim in the histories of music than in the encyclopedia. The modern histories, modern general encyclopedias, musicologists and college students all agree in regarding Bach, Beethoven, Wagner and Mozart as the four most eminent musicians of history. The rank orders of these four, however, are not all precisely the same. The modern musical encyclopedias replace Mozart with Schubert. [15 min.]

11:35 A.M. *Facial Expressions in Painting, Sculpture, Acted Poses, and Candid Camera Shots*. NELSON G. HANAWALT, New Jersey College for Women, Rutgers University.

This investigation set out to test a belief which is said to be widely held among artists that the painter relies chiefly upon the region of the eyes in portraying facial expression while the sculptor relies upon the region of the mouth. Reproductions of portraits in painting and sculpture are judged by three groups of Os, using a multiple choice method. Group I, the control group, judges on the basis of the whole face while Groups II and III judge on the basis of only the upper and the lower half respectively. There is no reliable difference between Groups II and III in either painting or sculpture, using Group I as a criterion of correct expression. All three groups make good discriminations but as would be expected a half face is not as good a basis of judgment as the whole face.

Since the results in the literature are blurred concerning the role of the upper and the lower half of the face in posed expressions and in "natural" expressions, the study was continued (using the same method) in these two fields. Candid camera shots are used for "natural" expressions. The results for posed expressions are similar to those reported above. Preliminary results for the candid camera shots indicate that there is likewise no difference in the upper and the lower half of the face as a basis for judgment.

The results are discussed in the light of the studies of facial expressions in general. The fact that the region of the mouth is usually given credit for the more important role in textbooks of general psychology is apparently due to a misinterpretation of Dunlap's early results and the failure of early investigators to calculate a statement of reliability of a difference. [15 min., slides.]

MENTAL TESTS AND MEASUREMENTS

Friday, September 4, 9:00 A.M.

Parlor A

HENRY E. GARRETT, Chairman

9:00 A.M. *Functional Analysis and Mental Measurement.* T. W. REESE and JOHN VOLKMANN, Columbia University.

The techniques of mental measurement have not taken full advantage of functional analysis, a characteristic method of modern science. The steps in functional analysis including the selection of a single, principal independent variable; the systematic variation of this variable through a wide range; the determining of functional relations as a consequence of the observation of one or more dependent variables; the construction of a set of assumptions and the deduction of rational equations; the verification of the rational equations by comparison with the obtained functional relations. Examples drawn from sensation, conditioning, and judgment indicate that the mathematical form of the relations is the same for different individual subjects and that the values of the constants are not the same. Hence, individual performance is described by the form of the relation and the particular values of the constants. Differences between individuals are described by the differences between their constants. The theoretical structure that underlies the rational equation makes the constants meaningful.

To mention one contrasting feature, the usual method of describing individual performance by a test-score does not involve the systematic variation of a single independent variable. Indeed, additional variables are sometimes purposely introduced to increase the difficulty of the test, as in the case of the Kohs Block Designs. In those tests in which an independent variable can be identified, values of that variable are arbitrarily chosen; it can be shown that, as a result, one may find a reduced correlation between two sets of scores obtained with the use of two different values of the independent variable.

We are in the process of using functional analysis in the construction of a test, and find that its straight-forward application in mental testing is difficult but not impossible. [15 min., slides.]

9:20 A.M. *Verbal Intelligence of the American Adult.* ROBERT L. THORNDIKE, Teachers College, Columbia University and GEORGE H. GALLUP, American Institute of Public Opinion.

This paper reports results obtained from testing the sample of the American adult public reached by one of the opinion surveys of the Ameri-

can Institute of Public Opinion. The test used was an untimed 20-word power test of word knowledge made up of items taken from the I.E.R. Intelligence Scale CAVD. The population of about 3000 was the standard voting sample of the American Institute of Public Opinion. Testing was done by the regular interviewers of the Institute, and the test was incorporated into one of the periodic inquiries into public opinion on issues of current interest.

The results provide, in the first place, data on a norming population with which other groups of adults can be compared. For this group, the mean score is about 11 words right out of 20, which has been estimated to correspond to an Otis Self-Administering M.A. of about 16 years 4 months. The variability of the adult group was very large—about twice that of a college entrance group. The results provide, in the second place, certain interesting break-downs of the total group. These indicate: (1) Almost no drop with age from 20 to 60 on this type of test material. (2) Small sex differences, favoring the women. (3) Small regional differences, favoring the far western states. (4) Sharp differences by economic level, such that only about 10% of the "under \$20 a week" income group come up to the median of the "\$40 and over" group.

The value and interest of this study lies in the type and scope of sample tested. The limitations lie chiefly in the brevity and limited scope of the test. [15 min.]

9:40 A.M. *Stanford-Binet Intelligence Test Type Performance by a Rhesus Monkey.* BENJAMIN WEINSTEIN, University of Wisconsin.

This study develops further the previously reported matching-from-sample and color categorizing experiments with monkeys. In the basic problem, matching-from-sample, the subjects matched the sample object with its replica in diverse groups of choice objects. Color categorizing involved sorting the red objects from groups of various red and blue choice stimuli, when presented with a specific cue—a red triangle; and sorting the blue objects when presented with another specific cue—a blue ellipse.

In the present study further training was given one of the subjects of these previous experiments. In the new sorting situation the cue objects, triangle and ellipse, were uncolored, i.e., the cue objects now in no way resembled the choice stimuli which they represented. Next the subject was tested in a situation converse to this last problem. The two symbols, uncolored triangle and ellipse, were presented as choice objects in successive trials in which a series of various blue and red objects were employed as cue stimuli. Selection of the triangle was required when a red object was presented, and selection of the ellipse when a blue object was presented.

The stimulus-response patterns of behavior in these two new situations are analyzed. The successful performances are discussed in the light of responses required in certain Stanford-Binet and clinical tests of intelligence.

In order to enable the monkey to master the described problems, several laboratory techniques were devised. These were (1) *planned taming*, a method for securing high attention level in the problem situa-

tion; (2) *tutoring*, a method for giving the subject experimental guidance during the preliminary training; (3) *the maximal stimulus tray*, an arrangement consisting of three-dimensional stimulus objects over food wells on a tray presented under bright illumination. [15 min., slides.]

10:00 A.M. *A Comparison of the Stanford-Binet and Bellevue-Wechsler Scales for Adult Offenders.* I. LEON MAIZLISH, Diagnostic Depot, Division of the Criminologist, Joliet, Illinois.

In this study answers are sought for the following questions: (1) How do the total scores on these dissimilar scales compare when administered to the same subjects? (2) What is the order of difficulty of the tests within the scales? (3) Does that order differ for age groups, literates and illiterates, Negroes and whites? (4) When is the one or the other scale to be preferred?

Adult offenders have been tested with both scales in ABBA order. The Bellevue-Wechsler I.Q.'s, especially the Efficiency Quotients, correlate highly with the Stanford-Binet I.Q.'s. The theoretical implications of the results and the clinical aspects of the use of each test with adults will be discussed. The data are based on tests of 100 subjects.

Mr. Jerome Schiffer collaborated in the testing. [10 min.]

10:15 A.M. *Case Studies of Negro Children of Binet IQ at or Above 160.* MARTIN D. JENKINS, Howard University.

Although numerous investigations dealing with the psychometric intelligence of Negro children have been reported little attention has been given to the superior Negro child. The present study has as its purposes the assembling of a number of cases of Negro children of Binet IQ at or above 160 in order (1) to ascertain the existence of such individuals, (2) to study the origin of the subjects and their characteristics at the time of their identification, and (3) to follow the development of the subjects over a period of years. The present paper is concerned largely with the origin and characteristics of the subjects.

Thirteen subjects, ranging in Binet IQ from 160 to 200 are included. Two of the subjects were included in the writer's previous study of superior Negro children and the additional subjects were identified in psychological clinics in Washington (Proctor, Long), New York (Hollingworth), Chicago (Beckham), and Cincinnati (Bills).

The test performance, school progress, familial background, and racial composition of the subjects are presented. The intelligence test performance reveals qualitative as well as quantitative superiority. EQ's tend to be lower than IQ's. The subjects are typically accelerated in school progress—some to a striking degree. The parents, in most instances, are above average in educational level and occupational status. The subjects range from N to NWW in racial composition.

Individual differences in post-identification are illustrated by two cases—one "successful" and one "unsuccessful." The implications of the findings are discussed. [15 min.]

10:35 A.M. *Geographic Differentials in Mental Deficiency.* CHARLES C. LIMBURG, United States Public Health Service.

In order properly to plan for the identification, care and training of the mentally deficient it is imperative to have data of incidence.

Geographic differentials in mental deficiency are illustrated by the presentation of data from census enumerations, from World War draft examinations, from the number of persons in public and private institutions for the mentally deficient, from selected estimates of retarded children in public schools, from classification records of prisoners received in Federal penal and correctional institutions from all states, and from a limited sample enumeration of the mentally deficient in Kentucky made by the Division of Mental Hygiene of the United States Public Health Service. These data indicate interstate geographic differentials along North-to-South and East-to-West gradients as well as the generally recognized rural-urban and intra-urban gradients.

Some of the more important causes for the findings presented seem to be differentials in fertility, morbidity, socio-economic resources, internal migration, and mortality. The implications of the findings are briefly related to mental test standardization, to the provision of institutional facilities, to educational programs, to occupational recruitment and to public health. [15 min., slides.]

10:55 A.M. *The Psychology of Subjective Status.* HERBERT HYMAN, Columbia University.

Status has been defined by at least two sets of operations: (1) Objective status in which the measurement is in terms of some objective criterion such as income. (2) Subjective status in which the measurement is dependent on the subject's judgment of his own status. A low correlation may be found between status as measured by the two sets of operations. There are two classes of subjective status, first, specific status which is a person's standing relative to other individuals, and with reference to some single dimension such as economic or social status, and second, general status defined by the person's general position according to any standard or combination of standards.

Two main problems are considered. First, is it possible to construct a reliable scale for the measurement of subjective status? Second, is general status a composite of equally weighted specific statuses? Graphic rating scales were constructed for five specific statuses, economic, social, intellectual, and cultural status, and physical attractiveness, and also for general status. The subject judged each of the statuses with respect to three reference groups, total population, friends, and people in his own occupation. Repeat reliabilities for these 18 scales were determined. Only one reliability coefficient is not significantly greater than zero, and 12 are .50 or higher.

The degree of agreement between a composite of equally weighted specific statuses and the judgment of general status is high; for the total population as a reference group, the difference between the two measures is 8.5%. The reference group is a variable of importance in the composi-

tion of general status, as well as in other features of the judgment of status. [15 min., slides.]

11:15 A.M. *Individual Correlation and Factor Analysis.* ERNEST S. PRIMOFF, Washington, D. C.

Identical situations evoke different characteristics of different people; group relations may not hold for individuals. A formulation is developed for shift of individuals' scores from one test to another: $r = 1 - 28.28A^2$, where A is percent of average shift over range. A shift-curve is described, with evidence of use in measuring *actual* variability instead of S.E. which is static for any particular coefficient. Again, "percent guess" is represented by relation to conditions at zero correlation instead of, as with coefficient of alienation, at r for invariant prediction (mean shift relation is $\sqrt{1-r}$; variance relation, $1-r$). Finally, the premise that zero or 100% shift represents perfect correlation, 50% shift zero correlation, is expressed in a second-moment function, so that correlations typified by abilities of one individual may be found. To illustrate, factor analysis is applied to intercorrelations among scores of an individual subject. [10 min.]

MODIFICATION OF PERSONALITY

Friday, September 4, 9:00 A.M.

Parlor B

ARTHUR G. BILLS, Chairman

9:00 A.M. *A Psychogenic Program of Character Development.* ERNEST M. LIGON, Union College.

This is a report of a long time study of methods and goals for character development. Traditionally, character education has been essentially a dichotomy. On the one hand, there are the broad, social character traits which parents and teachers have hoped their children would acquire before maturity. On the other hand, there are the numerous every day problems of child training, ranging from thumb-sucking and enuresis to temper tantrums and seclusive behavior. These latter have, for the most part, been oriented in the life of the child as and when they occur, with little or no reference to the major aims of character education. This study, in the Union-Westminster Character Research Project, has been two-fold. First a tentative list of eight general character traits have been selected as major goals. The criteria used in their selection have included: psychological validity, social desirability, teachability, positiveness, and modifiability. The second phase of the study has been an effort to break these down into many specific trait habits. From a large number of such habits chosen from the literature in child development and mental hygiene, this list has been selected. Only those trait-habits have been included in it which questionnaire studies have revealed to be consistently lacking in children. They have been assigned to the various age levels on the basis of established principles of child development and clinical experimentation. They have been further subdivided according to which type of char-

acter-building agency is best equipped to teach them—church, home, or school. More exhaustive studies for methods of teaching them are now in progress. [15 min., slides.]

9:20 A.M. *Consistency and Change in Behavior Manifestations as Observed in a Group of Sixteen Children During a Five Year Period.* KATHERN MCKINNON, Teachers College, Columbia University.

This study deals with the personality development of 16 children during a five year period—from the time when they entered nursery school until they were eight or nine years of age.

The procedures are (1) to describe children's behavior manifestations that were observed by teachers and reported by them in written summaries, (2) to trace the development of these behavior manifestations over a period of five years with emphasis upon evidences of change or persistence from year to year, and (3) to analyze in so far as possible the influences and factors which might have contributed to the persistence or change in behavior expression during the period studied.

The investigation reveals that the majority of children exhibited dominant characteristics such as *Conformity*, *Caution*, *Withdrawal* or *Invasiveness*, that persisted quite conspicuously, in one form or another, throughout the period of the study. In some cases, there were changes with respect to certain overt manifestations so that predominant characteristics were less conspicuous at the older age levels than they had been at three years of age. Among the children who showed more substantial changes in predominant forms of behavior, the shift was always in the direction of a form of behavior that had been evident but less pronounced at an earlier age.

Among other findings, the study points out that comparable school procedures followed with children showing somewhat similar predominant forms of behavior resulted in change in some cases but not in others. In cases where the educational philosophy of the school was at variance with that of the home, the data reveal that children made a less satisfactory adjustment to all phases of school life. [15 min.]

9:40 A.M. *Some Results from an "Annoyance Inventory" in a Cumulative Study of Adolescents.* HERBERT S. CONRAD and MARY C. JONES, Institute of Child Welfare, University of California.

The "annoyance inventory" employed in the present study lists briefly some 140 items of possible annoyance to adolescents. The items were classified, by the "jury" technique, into 11 categories, such as Injury to Self-Esteem, Untidiness (including three sub-categories), etc. The inventory was administered yearly for five years to a sample of about 300 children, starting in grade VI. The general theory underlying this report is that the negative response of annoyance may deserve the same careful and detailed investigation as has been given to the positive response of interest.

Following are some of the principal results: With few exceptions, the average provocativeness of each item remains essentially stable from year to year, even in this sample of adolescents. The annoyance-scores for the

different categories are rather highly correlated (average, about .75), especially for the three sub-categories of Untidiness (average, about .90). The girls' annoyance at items of Untidiness is, on the average, about one standard deviation above the boys'. An unexpected finding is the progressive decrease (over the five-year period) in similarity between the inter-category correlations for boys and those for girls. The annoyance-score from the total inventory correlates negatively with the score on an adjustment inventory (about $-.40$). The annoyance scores (for individual items, categories, and total inventory) have been found useful in individual case-studies.

Methodological findings include the relation between ordinal position and provocativeness of items, and the effect of changes in item-phrasing on provocativeness.

The annoyance inventory was prepared by M. C. Jones and H. E. Jones. [15 min.]

10:00 A.M. *The Role of the Father in the Development of the Personality of the Stutterer.* ESTHER C. WHITMAN, Worcester Child Guidance Clinic.

A study of 35 male stutterers suggests that there are certain relationships operating in the home which determine the type of personality that the male stutterer develops. Fifteen boys were selected for intensive study because the history and hours of therapy were more informative and because the author had personal contact with them. Although these boys are usually above average in intelligence with good school achievement, there is little striving in any other direction. They are passive, showing neither strong masculine nor marked feminine characteristics. Their interests and attitudes suggest, however, femininity.

The relationship with the mother is marked with change; much hostility is shown at four years, diminishing to marked benevolence and dependence around eight years, and a suggestion that hostility recurs in adolescence. The attitude towards the father, while relatively without significance during the pre-school years, emerges clearly at about seven years. This consists of a feeling of dissatisfaction with him as a father, and a tendency to regard the mother as more adequate. In spite of his inadequacy, he is also pictured in a severely punishing role, and the mother becomes relatively an easier person with whom the boy may identify. In spite of repressed hostility towards her, she is less threatening to him than the father.

An hypothesis is developed in which stuttering is considered as evidence of a conflict in which the father is the cause of the boy's inability to resolve that conflict. The boy represses early his hostility towards a somewhat punishing mother because he finds her relatively more adequate to give him support. The father's inadequacy makes it easier for him to identify with the mother, but the ever-present threat of punishment for supplanting the father prevents complete identification. Caught between the two, he wavers passively without developing strongly either masculine or feminine characteristics. [15 min.]

10:20 A.M. *Personality Traits as Due to Cross-Inheritance.* A. A. ROBACK, University Extension Department, Commonwealth of Massachusetts.

The question of which traits are inherited from which parent has occurred to many writers, particularly in autobiography, and has been broached, among others, by Galton and Ellis, but a comprehensive investigation has never been undertaken to answer it.

Such an investigation embraces (a) an examination of statistical literature on eugenics, genetics, and case studies on deviates, (b) collection of declarations in works by noted people regarding their resemblance in traits and talents to their respective parents, (c) analysis of institutional records (clinics, juvenile courts, homes for defectives and psychopathic wards), (d) questionnaires filled out by a cross section of the population, (e) personal observations made by investigators over a number of years on the families of acquaintances or on physical resemblance noted casually, (f) the statements of breeders.

At this stage of the investigation, which is still in process, the hypothesis is borne out both by hundreds of observations and 650 questionnaires submitted to both sexes that in general, males resemble the mother, and females the father in facial features, physique, temperament, and intelligence. The questionnaire called for data on (a) features, (b) physique, (c) facial expression (mimique), (d) gestures, gait (dynamique), (e) emotional life, temperament, (f) character, (g) interests, (h) intelligence, (i) talents, (j) physical and mental, and moral idiosyncrasies, (k) attachment to either parent, (l) affection shown by either parent.

The applied aspects of this problem are many (1) affecting biography, with overemphasis generally on father; (2) accounting for cross relationships on simpler grounds than the Oedipus and Electra complexes; (3) supplying additional cues in prediction of behavior; (4) in decisions relative to the granting of custody of minors on parental separation. [15 min.]

10:40 A.M. *Influence of Active Participation in a Social Group upon Expressed Level of Aspiration.* ANN MARGARET, Stanford University.

Previous studies indicate that subjects who are informed of group performances tend to alter their privately expressed discrepancy scores. The present study seeks to determine whether this same tendency is present when subjects are active members of a social group, reporting their performances and goals publicly. Each subject performed twice: once in the presence of the experimenter only, recording both performances and goals anonymously; and once as a member of a group of four, announcing both performances and goals to the group by posting them in full view. Tasks used were quoit-tossing and dart-throwing. Results suggest that the effect of active participation in the social group upon discrepancy scores is similar to the effect of reported group averages upon anonymously recorded predictions.

Miss Jean McDonald collaborated in the study. [10 min., slides.]

CONDITIONING AND LEARNING

Friday, September 4, 1:15 P.M.

Georgian Room

CLARK L. HULL, Chairman

1:15 P.M. *Acceleration and Retardation of the Rate of Conditioning by Relevant Reflex Behavior.* W. N. KELLOGG, Indiana University.

Eight laboratory dogs received 3,200 training trials and 320 retention trials in flexion conditioning by what has been called the "shock-shock" method. This method consisted of giving a 2-sec. alternating-current electric shock to one of the front feet as the conditioned stimulus and a 2-sec. d.c. electric shock to the right-rear foot as the unconditioned stimulus. Four of the dogs (the diagonal group) received the conditioned a.c. shock in the left-front foot, and the other four (the homolateral group) received the conditioned a.c. shock in the right-front foot. The homolateral animals were found to be much inferior to the diagonal animals in the proficiency of the conditioning which they achieved. The retention of previously learned conditioned responses was also much inferior in the homolaterally trained subjects. The explanation of this deficiency is to be found in the basic nature of the flexion reflex. The response to a strong electrical stimulus applied to any one member is a flexing of the stimulated member, a flexing of the diagonally opposite member, and a simultaneous extension of the two remaining members (Sherrington). Thus the conditioned and unconditioned stimuli received by the diagonal group both worked towards right-rear flexion, while the stimuli received by the homolateral group aroused antagonistic reaction tendencies. The results are summarized by the following general principle. *Learning which cuts across or interferes with a fundamental pattern of behavior laid down in the structure of the organism, is more difficult than learning which does not interfere with such a pattern.* [15 min., slides.]

1:35 P.M. *A Study of the Effect of Nutritional Deficiency on Conditioned Reactions in Dogs.* W. T. JAMES, Cornell University.

The interest in these experiments was in determining the effect of retarded growth on behavior in dogs. In a litter of five saluki puppies, three dogs were fed enough food for normal growth, while two were given a balanced diet sufficient for maintenance but not for growth. The studies were started when the puppies were three months old. Behavior was compared by an analysis of the conditioned avoiding reaction of the foreleg and by general behavior in the kennel. The retarded and normal dogs did not differ in their ability to form conditioned reactions, but differences were observed in the delay of the CR inhibition of the reaction, extinction, resistance to work, and general behavior correlates, including breathing pattern and heart action. Under kennel conditions the retarded dogs were observed to be less active than the normal animals, but exhibited heightened aggressiveness in any food taking situation. [15 min., slides.]

1:55 P.M. *A Gradient of Pseudo-conditioning.* J. DONALD HARRIS, University of Rochester.

In a previous report (This JOURNAL, 1941, 38, 572) the writer investigated certain inherent non-associative factors arising in conditioning. It was demonstrated by more than mere inference that such factors do operate during actual conditioning, and the course of one of them, habituation, was traced. In that experiment, however, the several effects of the UCS *per se* could not accurately be stated: the phenomenon of pseudo-conditioning could not be segregated from the general facilitation produced on the CR by the UCS irrespective of temporal contiguity.

It is now possible to describe with considerable accuracy the course of both these factors during typical conditioning. Using the same situation and stimuli, and with rats comparable in every way to those of the previous experiment, the effect on a single day's conditioning of preceding that day by 0, 1, 2, 3, 5, 7, and 10 days of 10-shocks-a-day training was investigated. The gradient of pseudo-conditioning thus determined is at a maximum after 1 day of shock training, subsides to a low—but not to zero—after 5 days, and rises slightly after 10 days.

This gradient can be used directly in comparisons with other variables already determined or to-be-determined in this typical conditioning situation. Following Hull, the single assumption is made in the manipulation of these factors, that response strength at any moment is a function of the algebraic sum of all the incremental and decremental factors active at that moment.

The present experiment thus completes the assigning of specific roles in conditioning, of apparatus-habituation, CS-habituation, pseudo-conditioning, facilitation, and finally the role played by that associative factor related directly to the temporal contiguity of stimuli in conditioning-type training. It is of more than passing interest that the theoretical curve of this last factor is distinctly S-shaped. [15 min., slides.]

2:15 P.M. *The Function of the Motor Mechanism in Learning and "Excited Emotion."* EDWARD GIRDEN, Brooklyn College and the University of Rochester.

In a series of recent experiments by the present writer, it was found that in the dissociated drug-state, induced in animals with either curare or erythroidine, a conditioned response (CR) could be developed which consisted of overt (striated-muscle) and autonomic (blood pressure, pulse and pupillary-muscle) responses [*Journal Experimental Psychology*, 31, in press]. Although the drug-state experiences are completely repressed after complete recovery from the drug, these new facts made possible a valid test of the motor theory of learning.

Young puppies were conditioned (Light reinforced with shock-to-paw) in one of two situations: (1) during complete striated muscle paralysis ("deep drug-state") and tested after the partial return of muscular function ("mild drug-state"), or (2) in the mild drug-state followed by tests in the deep drug-state. The results indicate (1) learning occurred in the deep drug-state, appearing as rise in blood pressure and change in pulse rate to Light-alone after training. In the mild drug-state afterwards,

however, the CR remained the same: i.e., striated muscle activity failed to appear with the autonomic CR to Light. (2) CR first established in the mild drug-state included both autonomic and striated muscle components. Subsequently in the deep drug-state, while muscular activity was impossible, the autonomic CR persisted.

It is concluded (1) that the dissociated drug-state is continuous: i.e., no cleavage exists between the mild and deep drug-states; (2) some striated muscle reactions must occur during the training period if they are to become part of the learned pattern. The data will be discussed in terms of other studies and a motor theory of learning and "excited emotion." [15 min.]

2:35 P.M. *Effects of Phenobarbital on Learning and Retention.* MARSHALL R. JONES, Cornell University Medical College and the New York Hospital, New York City.

Four groups of male albino rats were trained on a discrimination problem by a jumping technique. Retention was tested one month later and then the animals were retrained on reversed symbols. Retention for the reversed symbols was tested after a month.

Group I received daily injections of sterile water. Group II got water during learning and phenobarbital during retention periods. Group III got drug during learning and water during retention periods. Group IV got drug throughout.

Results indicate that when the effect of the drug on motivation is ruled out there is little or no evidence that ability to learn a discrimination is affected by the drug.

These experiments were planned and carried out jointly by Carolyn Ewers Jones and the author. [10 min., slides.]

2:50 P.M. *Validity of Averaging-Out Practice Effect in Learning Nonsense Syllables by the Ascending-Descending Presentation Method.* P. S. SHURRAGER, and H. C. SHURRAGER, St. Lawrence University.

Lists of nonsense syllables varying in length from 2 to 16 were tachistoscopically presented to 47 subjects. The rotation anticipation method was used. A blank card was inserted between syllables and all cards were shown for two seconds. The subjects were not told the lengths of the lists prior to presentation.

The subjects were divided into three groups. Group A consisted of 11 college students (women) in experimental psychology, familiar with nonsense material and method of presentation. They learned to three correct repetitions lists of syllables presented in the order 2-2-4-8-12-16-12-8-4-2-2. In Group B were 23 naïve students who learned lists of the same lengths in the same order. In Group C were 12 fifth grade children (six boys and six girls), who learned lists of 2-2-4-8-4-2-2 syllables.

Groups A and B showed a disproportionate increase in difficulty (as measured by repetitions required to learn) between 2 and 4 syllables on the ascending scale. On the descending curve, both A and B (now practiced subjects) showed difficulty to be directly proportional to length of list. With Group C the ascending and descending curves were identical

and directly proportional to length of list. The implications of these results will be discussed. I. C. Stewart collaborated in this work. [15 min., slides.]

3:10 P.M. *Relation of Length of List to Number of Repetitions Required to Learn to Completion Lists of Nonsense Syllables Varying in Length from 16 to 32.* I. C. STEWART, MacMurray College.

Lists of nonsense syllables varying in length from 16 to 32 were tachistoscopically presented to 16 subjects. The rotation-anticipation method was used; a blank card was inserted between syllables, and syllables and blanks were shown for two seconds each. The syllables were taken from Glaze's list and were of low association value. The lists were presented in the order 16, 20, 24, 28, 32, 28, 24, 20, 16 and the criterion of learning was three correct repetitions. The subjects were 16 college women who had had thorough previous training in learning nonsense syllables presented in the manner described.

When practice effect is averaged out, the number of repetitions required to memorize lists of from 16 to 32 syllables varies by less than one repetition. This result is compared with previous results on the relation between difficulty and length of list in immediate and delayed recall of lists of comparable length presented only once. P. S. Shurrager and H. C. Shurrager collaborated in this work. [15 min., slides.]

3:30 P.M. *An Organizing Procedure in Role Memorizing.* JOHN F. DASHIELL, The University of North Carolina.

College students were given serial lists of 14 monosyllabic words to be memorized, the lists being differently constructed. The instructions emphasized only the number to be recalled, not their order. But record was kept by E of the order of the recalls. Where the word-lists permitted, eight of the nine subjects showed measurable tendencies to re-group the words in sequences that represented certain separate thought-contexts. The organizational emphasis in interpreting memory is thus given support; but the associational emphasis must be recognized as supplementary. [10 min., slides.]

3:45 P.M. *An Experimental Study of Transfer of Training in Motor Learning.* PATRICIA WOODWARD, University of Pennsylvania.

The purpose of this study was to determine whether transfer of training occurs between two tasks which are nearly identical in pattern of motions, but are composed of very different materials, typical of the electrical device and textile industries. The near-identity of the two tasks was established by two methods of motion analysis. One hundred seven trade school girls were tested on one assembly and repeated it approximately a week later; on five consecutive days half this group learned and practiced the other assembly with no instruction in general principles. A statistically significant difference was found between the final levels of performance of the control and experimental groups and of 19 matched pairs. This is interpreted as due to the identity between the two assem-

blies, either in motion pattern or in the general work situation. [10 min., slides.]

ATTITUDE AND MORALE

Friday, September 4, 1:15 P.M.

Salle Moderne

EDWIN R. GUTHRIE, Chairman

1:15 P.M. *The Effect of Social Change on Morale.* JEROME M. SEIDMAN, Brooklyn College.

Eight self-evaluating, free response questions were formulated. The first four were concerned with the "likeability" of the change, suggestions for improvement, resultant changes in "important" life experiences, and any other information which the subject believed to be relevant; the other four related to specific changes in everyday activities.

Four hundred and seventy-six tenants of a metropolitan, government rehousing development were used in an exploratory study. The sampling technique, rapport indices, evidences of social causation, and factors relating to improvement in morale will be discussed. [10 min.]

1:30 P.M. *Patterns of Religious Thinking Among 835 College Students.* MARY C. VAN TUYL, University of Michigan.

The key item of this study was built from material given in the autobiographical reports of 835 university students. The item attempts to describe the individual student in three respects: first as to general pattern of religious ideas; second as to surety and decision of expression; and third as to how much the student seems to be cognizant of relations between his expressed religious ideas and the ideas he has been exposed to in his regular education, i.e., how much he is "thinking."

Within the triple coding of the item 42 tri-varying types are possible. Only 33 of these, however, appeared out of the data. These types are further qualified and differentiated one from another when placed in relation with other items which give religious ideas in some detail.

The patterns of religious-mindedness which emerge are checked against sex, class in college, intended vocation, difficulties in high school and/or in college, grades, fraternity and sectarian affiliations, time of first significant change, if any, in religious ideas, and a number of other factors in the student's present and previous living.

It becomes clear in this study that a general mean or mode of single aspects of individuals is of little significance. As more and more of the available information from the autobiographies is put under analysis, the differences in the individuals become more apparent. Certain "types" do emerge which have considerable similarity in profile, religiously and otherwise. These "types" cut across the three great religious affiliations, Jewish, Catholic and Protestant. A large percentage of all three are moving or have moved away from the authoritarian religious patterns.

Some measures of reliability and validity in the handling and in the material have been possible and these are indicated. [15 min., slides.]

1:50 P.M. *Attitudes and School Status.* SAMUEL TENENBAUM, Girls' High School, Brooklyn.

The purpose of the investigation was to determine to what extent attitudes expressed by children toward school, teachers and classmates correlate with intelligence, achievement in school work, conduct and proficiency marks, school progress, and amount of absence. The subjects were 639 elementary school children whose attitudes were obtained by means of the investigator's Attitude Questionnaire.

Twenty per cent of the group expressed sentiments indicating they were unhappy in school, while 40 per cent were highly critical of the school situation. Girls consistently expressed more favorable attitudes than boys. Eight per cent indicate dislike of their present teacher, while six per cent express dislike of teachers in general. About the same proportion of children indicate unfavorable attitudes toward classmates. The children do not associate school with pleasure. "Fun" and "enjoyable" are mentioned infrequently, when compared to references centering around "getting an education," "making money," "getting on in the world." The children who dislike school mention the teacher most frequently as the cause. A group of "problem" children was compared with "normal" children for school attitudes.

Eight variables—I. Q., E. Q., absence, part and present proficiency and conduct marks, grade progress—were correlated with attitudes toward school, teachers, and classmates. The association between these variables and the attitude scales was so low as to have no prognostic or predictive value.

This investigation does not support the theory that failure is always, or in the majority of cases, associated with resentment and "hate." Those children who were failed and did poor work in school did not express school attitudes which were notably different from those of bright and accelerated children. [15 min.]

2:10 P.M. *Changes in Attitude of College Students.* SETH ARSENIAN, Springfield College.

This study attempts to answer the following questions: (1) Do basic evaluative attitudes of students change during four years of college experience? (2) Does the vocational orientation of the college course *select* students with characteristic pattern of evaluative attitudes and influence the amount and the direction of the attitudinal change? (3) What factors are related to change in religious attitude? Factors studied are: curricular and extra-curricular influences, plasticity and rigidity of student, change in concept of religion, etc.

The Allport-Vernon study of values was administered to three successive classes of Freshmen entering a men's college preparing for the professions of physical education and social work. To 76 freshmen who continued their college course through the senior year the Allport-Vernon test was administered a second time.

Through appropriate statistical techniques the changes in attitude over the four year period have been studied for the two major groups. To study changes in the pattern of attitude in freshman and the senior years the intercorrelations between six evaluative attitudes have been calculated.

A special questionnaire was devised and used to study factors associated with change in religious attitude. A more intensive study is made of students who showed extreme positive or negative changes or no change at all in religious attitude during their college course.

There are certain definite changes in evaluative attitudes which have implications for the theory and practice of education and of higher education in particular. The change in religious attitude and factors associated with the change seem to me of special interest and importance. [15 min.]

2:30 P.M. *The Nature of Changes in Attitudes of College Students Toward War over an Eleven-Year Period.* VERNON JONES, Clark University.

The attitudes of college men toward war have been studied over a period of 11 years by means of the Thurstone-Droba Scale and, over part of this period, by a scale constructed by the writer. Several entire classes have been followed over their four years of college. The results based on changes in average attitude are treated separately for three periods: (1) the period of 1930-1937, during which there was a gradual trend toward pacifism; (2) the period from Munich to December 1941, during which there was a slight reversal of the 1930-37 trend; and (3) the period following Pearl Harbor.

The results based on the notion of a single continuum (and involving the averaging of attitude scores) conceal many of the most dramatic changes taking place as a result of the change in world conditions from 1930 to 1942. The study of individual items reveals several facts of interest concerning the nature of attitudes and ways of changing them. Individual variability, for example, was found to be very great. Also it was found that large changes occurred in specific attitudes, while average attitude changed very little—a fact which seems to have implications for education and propaganda. These and other similar results indicate the limitations of the concept of a single militarism-pacifism continuum in studying attitudes toward war and peace. The results would seem to be more consistent with a theory of multiple continua. [15 min., slides.]

2:50 P.M. *Attitude Fluctuation as a Measure of the 'W' Factor.* RAYMOND B. CATTELL, Harvard University.

Advances in establishing generalizations about personality development depend both upon the discovery of clear cut variables and upon the devising of tests whereby these variables may be more briefly and accurately measured. Assuming that the 'w' factor of character integration and stability is now a sufficiently established and definite personality variable, the present research sets out to explore a type of test situation in which its influence may be expected to be considerable and by means of which it may be measured.

The hypothesis governing the present test design supposes that there will be greater fluctuation of attitudes—either through the pressure of *ad hoc* experimental influences or through the normal impact of daily events—in individuals whose sentiments are less well integrated in the dynamic hierarchy which presumably functions in the 'w' factor. Though there are many analyses of attitude tests from the point of view of consistency of test items there seems to be as yet no data relating the consistency of the individual's responses to personality traits. Accordingly a series of attitude tests was devised, some dealing with deeper sentiments, some with attitudes to the self and some with more superficial attitudes. These scales were administered three times to the same set of subjects, with intervals of one day and one month. Each subject was given a fluctuation score and the fluctuation scores were correlated with ratings of 'w' factor variables, with extraversion and with a number of other traits.

Both with children and with adults the results show clearly, first, that fluctuation tendency is a consistent 'trait' of the individual, and secondly, that the fluctuation measure is very significantly related to 'w.' Further, fluctuation on deeper sentiments is more diagnostic of defective 'w' than is fluctuation on more superficial sentiments and attitudes. Some contrasts between the results with children and with adults throw light on the nature of the connection. [15 min., slides.]

3:10 P.M. *The Development of the Ideology of Altruism and Fairness in Children.* BEATRICE A. WRIGHT, State University of Iowa.

Two aspects of ideological development in children were studied: (1) The structure of the ideology (e.g., fairness vs. generosity). (2) The scope of the situation considered in making a moral judgment (equity).

Each subject (there were 36 eleven year olds and 36 eight year olds) was shown eight toys only half of which were very attractive. Four of the toys he could keep for himself and four had to be given to a second child. This permitted a generous, fair, or selfish distribution of the toys. After the behavior experiment a series of hypothetical situations involving the distribution of these eight toys, were presented.

The relative occurrence of fair and generous judgments is significantly related to age. The eleven year old children advised a fair distribution of the toys considerably more often than did the eight year old children; and conversely, the younger children made significantly more generous judgments than did the older children. The difference between fairness and generosity is coordinated to a theory of the dynamic role of ideology in which the ideology functions by structuring the need systems of the person.

As the child becomes older, his moral judgments are based increasingly on the characteristics of the particular situation (equity). The biserial correlation between equity and age is $r_{bis} = .42 \pm .08$. With an increase in equity, there is also an increase in the number of aspects of a situation seen to have bearing on the judgment (breadth of equity). The curvilinear correlation between equity (x) and breadth of equity (y) is $\eta_{y,x} = .62 \pm .05$. The results on equity are linked by a theory coordinating

greater differentiation and enlargement of the life space with age. [15 min., slides.]

3:30 P.M. *Morale Cues in War Communiques.* JOSEPH SHOR, New School for Social Research.

This study seeks to discover Nazi propaganda policies in the reporting of war news. Two primary values may proceed from such discoveries.

The Nazi conception of morale, that morale desired by their propaganda chiefs, finds expression in their military communications to their home population. Detailed comparison with the British communiques, for types of sentences and special references, reveals sharply divergent attitudes toward governmental responsibility, formalism, and authoritarianism, most visible in Nazi pretenses of infallibility and invulnerability. We note in the German communiques fewer explanations of military policy, or announcements of action in process or of certain types of admissions of losses and reassurances against dangers. Other aspects of propaganda policy, also related to the study of mass communications, are the abnormally rigid, "controlled" length of the Nazi communiques unresponsive to the changing volume of military activity, the pseudo-democratized heroization of representative individuals, the pretentious use of "according to plan" expressions for building and maintaining an image of omnipotence and for purposes of concealment, and, possibly, the unwittingly predictive use of the word "our" in situations of elation and of apprehension. The reputation for veracity of the Nazi communiques receives little support from our study.

Of somewhat more immediate interest is that part of the study in which we have analyzed the devices used in plugging victory and in admitting defeat, by concealment, by fabrication or by a re-presentation and re-interpretation of the military action. Fortunately, recent events permit a more balanced distribution of success and failure situations for study. The scheme of devices developed may facilitate insight into changing states of morale and shifting foci of popular and military concern.

The study, under the direction of Hans Speier, co-director of the Research Project on Totalitarian Communication, was made possible by a Rockefeller fellowship. [15 min.]

3:50 P.M. *A Quantitative Analysis of Hitler's Speeches.* RALPH K. WHITE, Cornell University.

Using a method similar to the conversation-analysis techniques developed with Lewin and Lippitt, Hitler's speeches, in the book "My New Order," were quantitatively analyzed. Each paragraph was characterized in terms of its dominant meaning or "theme." Reliability coefficients were computed.

In general, the results merely express in quantitative form the prevailing American assumptions about Hitler's propaganda techniques, but there is one important exception. It is often assumed in this country that Hitler's propaganda "glorifies war." Actually his speeches show an overwhelming preponderance of anti-war themes. Whether or not he himself consciously wants war as such, he at least recognizes that most

of his hearers do not. To justify specific aggressive acts, he consistently resorts to the creation of a "paranoid" world-picture, which represents other nations or groups as wanting to destroy Germany, and which invokes the motive of fear as a reason for fighting against the foreign war-makers. To put it quantitatively, more than 80% of the paragraphs are elaborations of four basic themes: "they are evil"; "we are good"; "they are weak"; and "we are strong." Since this combination involves ideas of both grandeur and persecution, it is perhaps more aptly characterized by the word "paranoid" than by any other single word.

Within these four basic themes, subthemes were differentiated. For instance, the pronoun "they" has a varying content (the Jews, the Marxists, the bourgeoisie, the English, etc.), and various sorts of evilness are attributed to them (e.g., they kill, they rob, they enslave, they lie, they are cowards, they poison our blood, they are different from Us). By totalling up the relative frequency with which these various subthemes occur, with reference to a particular group, it is possible to characterize quantitatively several of the official Nazi stereotypes. [15 min.]

PROJECTIVE TECHNIQUE

Friday, September 4, 1:15 P.M.

Parlor A

JOHN E. ANDERSON, Chairman

1:15 P.M. *A Differential Study of Manual Autistic Movements.* MAURICE H. KROUT, Chicago City Junior Colleges.

The discovery of generalized (group-wide) meanings of manual autistic gestures hinges on two facts: a) conflicts experimentally induced in human subjects and b) reliable inter-sex differences in the forms of symbolic expression. This report covers both phases of the problem.

After five years' trial and error, we settled upon 15 experiments designed to induce conflicts in the S's. One control experiment was arranged not to precipitate a conflict. The theory was that blocked impulses, not released through speech, would be shunted into motor paths leading to autistic movements. Thirty-four manual autistic types of movement were observed.

The 1611 experiments involved in this report were shared equally by both sexes. There were 67 males and 67 females. Altogether 2376 manual autistic movements were recorded for the males and 2361 for the females. Each experiment lasted four minutes, and a series of 16 experiments required over an hour. On this basis about 150 experimental hours were spent on laboratory work.

Inter-sex differences were discovered for average latencies following the conflict. For males this was 0.454; for females, 0.432 minutes. The highest latencies for women were recorded in connection with conflicts involving a) attachment to females b) a jilted suitor situation c) the recall of shameful episodes d) an unhygienic duty and e) the loss of a proffered prize. The highest latencies for men were found in connection with a) crushes b) a jilted suitor situation c) enuresis and d) the recall of shameful episodes.

Male-female differences appeared very clearly in 63% of the patterns. Using a critical ratio of 1.0 as our criterion of reliability, we found 15 manual autistic patterns to be predominantly male and 10 to be predominantly female. The nine movements in which the critical ratios were less than 1.0 (though as high as 0.7, 0.8, or 0.9) were regarded as neutral. The critical ratios for males ranged from 1.2 to 8.3, and for females from 1.6 to 8.6. A possible interpretation of this difference is proposed. [15 min.]

1:35 P.M. *Some Factors Related to Substitute Value at the Level of Fantasy.*
GEORGIA BENNETT, Worcester State Hospital.

An experiment on substitute activity, using the interrupted task technique, indicates that when central tasks are used, a degree of substitute value greater than that in neutral tasks can be produced for normal subjects. However, for the schizophrenic subjects only a higher degree of initial tension is created. Analysis of the subject matter of the two projective tasks involved suggests that the inability of the patient group to express inwardly directed aggression at a reality level, or to express violent aggression in *any* symbolic way, may be the important determinants in the lack of substitute value of the task for the schizophrenic subjects. Analysis of this material for other topics reveals a tendency for the patients to avoid mention of sexual relationships and to deal with "anaclitic" thema. The normal subjects, on the other hand, frequently deal with such topics as marriage and love, and are able to create situations of sexual failure and disappointment. The normal subjects also deal more frequently with topics of anxiety and economic insecurity.

These results lead to the consideration of the problem of the efficacy of fantasy. The implication of the present study seems to be that not only is the schizophrenic patient unable to find adequate substitutes at the level of real events, but also at that level of unreality represented by fantasy. The nature of the thema produced in the tasks suggests that schizophrenic fantasy does not constitute an area of substitute or vicarious satisfaction because it does not deal with adult stresses. The hypothesis is further considered in relation to a separate investigation utilizing the Thematic Apperception Test. [15 min.]

1:55 P.M. *The Recall of Fairy Tales in Normal and Hypnotic States.*
MARGARET BRENNAN, The Menninger Clinic.

The experiments to be reported constitute an attempt to study the problem of the revival of childhood memories. Hypnosis is used as a research tool to the end of investigating the omissions and distortions which characterize the normal recall of fairy tales. Subjects are asked to recall in the normal and hypnotic states standard fairy tales heard in childhood. The process of the "reconstruction" of the fairy tale in hypnosis, and the relation of the quality of both the original omissions and the distortions to the strivings and attitudes of the subject as shown in the Thematic Apperception Test, will be discussed. It will be shown that certain kinds of critical omissions and distortions are characteristic

for the group as a whole, and also that specific variations may be understood in terms of individual needs and conflicts as shown in the Thematic Apperception Test. [10 min.]

2:10 P.M. *Projective Reactions to Induced Frustration as a Measure of Social Adjustment.* E. H. RODNICK and S. G. KLEBANOFF, Worcester State Hospital.

Two groups of 12 subjects each, selected from the best and most poorly adjusted members of an N.Y.A. camp devoted to industrial training, were tested by means of a technique previously reported by Rodnick and Rotter.

Each subject was frustrated by surreptitiously controlling his score in a game involving motor coordination. The technique was so designed that after the subject had demonstrated his proficiency in the game he was prevented from attaining the goals he had set for himself. The particular details of the situation were such that motivation and interest were maintained at a high level.

Immediately before and after the frustration the subject was given a modification of the Thematic Apperception Test to obtain his projective reactions to a series of pictures. The details (themas) were then scored in a quantitative and objective fashion for the type of content. A comparison of the results of the two projective tests served as a measure of the subject's reactions to the frustration.

The following differences between the two groups were found to have statistical significance. The more poorly adjusted group showed, as a result of the frustration, (a) a marked decrease in themas of superiority of the central characters in the stories, (b) a considerable increase of themas of aggression, and (c) a decrease of those dealing with "emotional states." The better adjusted group, on the other hand, showed an increase in the themas dealing with "emotional states," and no decrease in the incidence of superiority of the central characters.

Composite scores were then derived for each subject based upon the individual shifts in these categories of projections resulting from the frustration. These scores were found to differentiate the two groups with a "t" of 3.4 ($p = .001$). [15 min., slides.]

2:30 P.M. *An Experimental Investigation of Projection.* LEOPOLD BEL-LAK, Harvard Psychological Clinic.

Projection is one of the concepts very much in the focus of recent psychological thinking. We wished to investigate the existence of projection experimentally. For this purpose we defined projection in accordance with Freud's formulation, as the ascription of wishes and sentiments which one has oneself to subjects or objects of the external world.

The following procedure was employed: seven subjects, students of Harvard University, were given ten pictures of the Thematic Apperception Test (T.A.T.) and asked to tell stories about them. The first three subjects got pictures 6-10 first, and then pictures 1-5; the remaining four subjects had the pictures in the proper order from 1-10.

Throughout the telling of the respective first five stories of each subject the experimenter made no comments after having given the initial instructions. After the fifth picture, however, sharp criticism was made of the stories told, and the criticism was repeated in modified form after each story from then on. The form of criticism after each picture was kept practically identical for all subjects.

The underlying assumption was that the subjects would resent the sharp criticism of the experimenter, and, if the hypothesis held, would project their aggression, by introducing more aggression into these stories than into the ones told without criticism. Accordingly, the stories were later analyzed as to the number of verbs and nouns connoting aggression.

A modification of the analysis of variance was used. The overall difference in aggression between stories with and without criticism was found to be significant between the one per cent level and the two per cent level ($P=0.017$).

Thus the hypothesis of projection could be considered essentially correct. There were additional data supporting this result, based on twenty-five more cases. Supplementary hypotheses about projection were necessary to explain some of the results. [15 min.]

2:50 P.M. *The Limits of Material Obtainable in the Single Case Study by Daily Administration of the Thematic Apperception Test.* SILVAN S. TOMKINS. Harvard Psychological Clinic.

A single subject was presented daily (five days a week) with a different picture, and asked to write a story about it. This was continued for a period of ten months. In addition, the complete set of Thematic Apperception Test pictures (30) was administered three times, at intervals of three months. The third administration was immediately followed by a fourth administration under the influence of alcohol. Further, the subject was required to record all his dreams over the ten month period.

Chief results were: (1) Main themes appeared in the first thirty stories given at the beginning of the investigation. (2) In spite of attempts to make the stories different (according to instructions given) main themes were repeated in second, third and fourth administrations. In certain cases, a common problem ran through the four stories to the same picture, but with different solutions projected. (3) Stories given under alcohol illuminated those preceding, in a manner analogous to associations to a dream. Particularly striking was the manner in which elements of the three preceding stories were woven into the story under alcohol. (4) Stories are independent of conscious moods. During a two week period of euphoria, pleasantly toned pictures elicited very grim stories. (5) Notwithstanding the recurrence of major themes, the long term daily administration of pictures *did* elicit important phantasies which appeared neither in the original thirty pictures, nor in the same set under alcohol. (6) There was evidence of transference phenomena, of resistance etc., but the absence of analysis was probably responsible for the relative constancy of the phantasies elicited. [15 min.]

3:10 P.M. *Formal Aspects of the Thematic Apperception Test.* FREDERICK WYATT, Harvard Psychological Clinic.

Phantasies produced in response to the selected pictorial stimuli of the Thematic Apperception Test were first viewed in terms of a model derived from the treatment of dreams and daydreams in psychoanalysis. Consequently, these phantasies were perceived as reflecting openly or in symbolic disguise the interplay of the conscious and unconscious dynamics of personality. It was the task of interpretation to recognize the instinctual constellations and conflicts in their recurrence in a number of responses. Thus the interpretation of the Thematic Apperception Test has so far proceeded predominantly on the basis of an analysis of content. But whereas the interpretation of dreams and daydreams in psychoanalysis is supplemented by free association and by other material, the procedure by its very character being extensive, the interpretation of phantasies in the Thematic Apperception Test is in principle limited to its own material, or, in other words, is intensive. Hence it becomes necessary to utilize the given material to the fullest extent. As the Rorschach Test has successfully demonstrated, not only the (projective) content but also the mode, or form of reactive self-expression is indicative of personality traits and syndromes. Pursuant to this idea a system of categories was set up in order to comprehend the formal and structural qualities of thematic productions. Three types, or 'levels' of form were explored: (1) Mode of presentation of the 'story' (phantasy)—comprising the character and sentiment of presentation, the introduction of figures, time and location, et al. (2) Comprehension and adaptation of the stimulus, as acuity, elaboration of the stimulus, the usage of details, et al. (3) Subjective reactions, such as bias, hesitation, expressions of like and dislike, et al. In a number of detailed personality studies these categories were found to be expressive of significant patterns and syndromes and thus by supplying a structural framework to enlarge the scope of interpretation. These findings will be reported and the implications of formal aspects in the Thematic Apperception Test discussed. [15 min.]

CEREBRAL FUNCTIONS

Friday, September 4, 1:15 P.M.

Parlor B

DONALD G. MARQUIS, Chairman

1:15 P.M. *Observations on Cerebral Dysfunction.* D. O. HEBB, Queen's University.

In assessing the clinical effects of brain damage, account must be taken of the dysfunction that may accompany pathological changes in an area of incomplete destruction. The existence of the dysfunction can be inferred from the fact that clean-cut surgical removals have in general less deleterious effect than the pathological changes, but more direct evidence as to its nature can be found in cases where the disturbance is followed by recovery.

Cases are reported which show that an apparently complete loss of function, of years' standing, may be reversible, and that abnormal function may similarly persist for weeks or months with later recovery. The functions which may be affected include simple motor and sensory functions (paresis and anesthesia), speech (aphasia), and the complex functions of intelligence and personality (dementia and psychosis). In some cases the disturbances are of the kind for which von Monakow explicitly framed the theory of diaschisis, but occur in circumstances which rule out his theory.

Acknowledgements of assistance are made to Drs. Wilder Penfield and Donald McEachern of the Montreal Neurological Institute. [15 min.]

1:35 P.M. *Functions of the Cerebral Cortex in the Mating Behavior of Female Rats.* FRANK A. BEACH, Department of Animal Behavior, The American Museum of Natural History, New York City.

Female rats in the experimental colony at The American Museum frequently display the masculine copulatory pattern. In addition, these females, which are apparently physiologically normal, exhibit regular estrous cycles, and during heat they manifest characteristically receptive behavior in response to sexually aggressive males. Previous workers have reported survival of feminine mating reactions in completely decorticated female rats, cats and rabbits. Earlier studies from our laboratory led to the suggestion that the mating behavior of the male rat involves the cerebral cortex. Extensive injury to the neopallium appears to eliminate or markedly reduce the male's capacity for sexual arousal. In the light of these results from separate experiments the study to be reported was conducted to determine the incidence, in the female, of masculine and of feminine copulatory behavior before and after removal of the cortex. The effects of hemi- and complete decortication upon the bisexual performance of castrated and intact females will be described. [15 min., slides.]

1:55 P.M. *Interference Factors in Delayed Response in Monkeys after Removal of the Frontal Lobes.* ROBERT B. MALMO, Norwich State Hospital, and ALVIN J. KLEINSASSER, Aviation Medical Division, Kelly Field, Texas.

After bilateral removal of the frontal association areas, two monkeys in Experiment 1 succeeded in delayed response performance when darkness was maintained during the delay interval. Unlike normal animals, however, the operated animals failed when a bright light was turned on in the cage during the delay interval. The indirect method of delayed response was used throughout the experiment; that is, light—instead of food—was used as the cue stimulus.

These results made necessary the revision of previous hypotheses concerning the functions of the frontal association areas. The hypothesis is suggested that removal of the frontal association areas in primates leads to a marked impairment in their general capacities for memory, because the loss of these areas renders them more susceptible to retroactive inhibition.

On the basis of a retroactive inhibition hypothesis one would expect to obtain more interference (lower scores on delayed response) when the cue stimulus and the interpolated stimulus are similar than when they are dissimilar. In order to obtain data on this point, Experiment 2 was performed with two frontal lobe animals.

In Experiment 2, three conditions of interpolation were used during each of eight daily sessions: (1) non-interpolation; (2) similar interpolation (cue stimulus and interpolated stimulus were alike in color); (3) dissimilar interpolation (cue stimulus and interpolated stimulus were different in color).

Both animals performed well under condition 1, but they performed poorly under conditions 2 and 3. A hue difference between the cue stimulus and the interpolated stimulus did not significantly reduce the interference effect produced by the light interpolation.

The implications of these results for hypotheses concerning frontal lobe function are discussed. [15 min., slides.]

2:15 P.M. *Hyperactivity in the Cat After Ablation of the Frontal Lobes and its Relation to Visually Controlled Aspects of Behavior.* KARL U. SMITH, The University of Rochester.

This study is based upon the investigation of some 36 animals. In the cat, localized extirpation of the most rostral part of the cerebral hemispheres, i.e., the cortex anterior to the cruciate sulcus, produces generally marked hyperactivity. Limited lesions within this area may bring about temporary alterations of activity following which the animal may return to its normal status. Extirpation of the cortex posterior to the cruciate sulcus within and including the boundaries of the so-called motor cortex does not produce these changes in activity, and if the motor areas are removed along with the frontal areas, the hyperactivity is no greater than that found with the frontal cortex removed alone.

Cats which display an increase in activity, as measured both by a stabilimeter and a rotating cage method, invariably portray forced following-responses to visual stimuli. This reaction consists of a very persistent tropistic-like following of moving objects or of a moving person. Animals which do not display this behavior do not show marked levels of hyperactivity. Accordingly, it is believed that the hyperactivity occurring after removal of the frontal lobes involves, in part at least, the modification of the inhibitory mechanisms of control of visual orientation. It is also concluded that the hyperactivity of the cat following removal of the frontal lobes may be accounted for in terms of a generalized modification of the same order in the sensory-motor system, for the same type of forced reactions to other stimuli may also be observed in the operated animals. [15 min., slides.]

2:35 P.M. *Modification of Perceptual Responses in Patients with Unilateral Lesions of the Frontal Lobes.* G. K. YACORZYNSKI and LOYAL DAVIS, Northwestern University Medical School.

To study the behavior of patients with unilateral frontal lobe lesions produced surgically 20 different experimental methods were used. The

only positive results were obtained on tests which measured perceptual responses. The changes in perception are of such nature that they cannot be understood by postulating one basic principle, nor are the concepts which have thus far been advanced to explain the functions of the frontal lobes sufficiently comprehensive to interpret all of our results.

Five patients, four with a right frontal lobe lesion and one with a left, differed from the controls in the following ways: (1) The threshold of perception was raised so that the time to apprehend either a word or a geometrical figure was increased. (2) The number of objects perceived in ambiguous figures, resembling the Rorschach test, was decreased. (3) Visual illusions which are normally seen by everyone were either not perceived, or, in the case of the Müller-Lyer illusion, the illusion was exaggerated. (4) Memory for visually presented objects was decreased, which interpreted in conjunction with other test results, may be due to a disturbance of attention. (5) The reversals of figures with reversible perspectives, such as Rubin's figures, the staircase, etc., were either absent or decreased, which may also be due to a function of attention.

In one patient a restitution of the reversals of the figures with reversible perspectives was observed 6 months after the operation, and more completely a year later.

It is suggested that the elation of some patients with frontal lobe lesions may be due to the disturbed perceptual processes in which the ordinary inhibitory stimuli are no longer perceived as such. [15 min., slides.]

2:55 P.M. *Modifications of Design Block Performance Before and After Corpus Callosum Section.* FRANCES H. PARSONS, University of Rochester School of Medicine and Dentistry.

This report discusses results of tests made on 18 epileptics before and after section of the corpus callosum. Psychological studies have been made by the Division of Psychiatry on these patients from the Division of Neurosurgery, preoperative tests beginning in 1939-40. In the cases reported here no uniform Kohs Block design response pattern was found, but some postoperative performances resemble the type of response reported by other workers as accompanying known cerebral lesions. Persistence of the "organic" response is discussed in relation to intelligence test level, extent of postoperative apraxia, and psychiatric history. As periodic retests now continue, many patients reach preoperative levels. [15 min., slides.]

LEARNING AND MEMORY

Saturday, September 5, 9:00 A.M.

Georgian Room

HERBERT S. LANGFELD, Chairman

9:00 A.M. *Sign Differentiated Responses to Two Attributes of a Stimulus by Rhesus Monkeys.* H. F. HARLOW, University of Wisconsin.

Six psychologically sophisticated monkeys were trained on a problem involving a principle utilized in the Weigl test—response to either

the color *or* the form of a stimulus. Three of the animals were tested using a matching technique. The presence or absence of food under the sample-object (food-sign) was the differential sign for response to color or to form. The other animals were tested using an oddity technique, employing two different colored test trays (board-sign) to indicate positive response to the single object unlike the other two in either form or color.

In both situations obviously, *either* color or form selection might be required in identical stimulus-configurations.

Training for all subjects was carried out in a stepwise procedure to the criterion of 90 percent correct responses in 50 trials, which constituted a daily test-period. A chance score would not exceed 34 percent correct for the situations used.

All six subjects solved the problem, in that the above criterion was met in the simplest possible situation which fulfilled the test requirements in an unequivocal manner.

Additional data concern the results obtained from extending the problem in the following ways: (1) increasing the number of stimulus-objects, both like and unlike the objects used in training; (2) testing for generalization of the "Weigl" principle by using new stimulus-objects; (3) introducing tests of delayed reaction to the differential color or form attributes of a single stimulus. These data will be discussed in terms of their relationships to results obtained in similar psychological investigations. [15 min., slides.]

9:20 A.M. *Koch's Method of Learning Code Reception.* HELEN PEAK, Randolph-Macon Woman's College.

This exploratory study has attempted to reproduce the conditions for rapid learning of the code reported by Koch as a step toward discovering the maximal conditions for learning this skill. Thirteen students practiced code characters 30 minutes per day, 4 days per week. Practice began with receiving at a rate of 60 characters per minute. One character was added at a time and practice continued after each addition until characters introduced thus far could be copied 90% correct. Results indicate a slower learning rate than Koch reports but there is evidence that the method is superior to methods now in use which begin with slower rates. Correlations between rate of learning code, Seashore music tests, American Council Psychological tests and other measures suggest possible methods of personnel selection. Elsie Rickards collaborated in this study. [10 min.]

9:35 A.M. *Degree of Learning and Proactive Inhibition in Retention.* R. H. WATERS, University of Arkansas.

The paper summarizes an investigation of the influence of degree of learning upon proactive inhibition as measured by the retention of a second list. One list of 18 nonsense syllables was given 0 to 40 presentations prior to the learning of a second list. The learning of the second list was divided into two periods separated by an interval of 20 minutes.

During the first period the list was given five presentations and during the second period, following the 20 minute interval, was brought to a criterion of two perfect successive repetitions. Evidence for proactive inhibition was sought in the learning records following the 20 minute interval. The number of trials and anticipations required to complete learning, the number of correct anticipations in the first and second trials after the interval, and the number of intrusions from the first list were studied to determine the presence of proactive inhibition.

Results indicate the absence of proactive inhibition in the relearning records. A small amount is present on the first trial but vanishes on the second trial after the interval. The amount present does not vary consistently with degree of previous learning.

The experimental data were contributed by 10 subjects who learned an 18-syllable list under each of the seven work conditions at the rate of one condition per day. Two cycles of the experiment were completed. [15 min., slides.]

9:55 A.M. *Retroactive Inhibition and the Interruption of Tasks.* WILLIAM C. H. PRENTICE, Swarthmore College.

This investigation sprang from a proposal by Koffka that the superior retention of interrupted tasks reported by Zeigarnik was due in part to increased stabilization of traces affected by "interruption-tensions." Such a theory may be interpreted as implying that traces of interrupted tasks should be more resistant to any form of interference and specifically to retroactive inhibition. Koffka's theory of Ego-forces suggests an extension of his treatment of interruption to include other motivational conditions which lead to improved recall.

This study presents a re-analysis of some data published by J. W. Nagge (J. Exper. Psychol., 1935, 18, 663-682) in a form that shows retroactive inhibition to be reduced for tasks learned under hypnosis as compared to tasks learned under normal conditions by the same subjects.

Evidence is presented comparing intentional learning with incidental learning. The results from these experiments show that retroactive inhibition is less marked for intentional learning than for incidental learning.

Further experiments are presented in which Zeigarnik's conditions are compared to those obtaining when all tasks are completed. The data show that retroactive inhibition is less marked for the interruption arrangement than for uniformly completed tasks.

Additional incidental evidence concerning the technique of Zeigarnik is presented, and the theoretical implications of such evidence are discussed together with the major findings. [15 min., slides.]

10:15 A.M. *Habit Reversal in Serial Verbal Discrimination Learning.* DAVID C. MCCLELLAND, Wesleyan University.

Discrimination learning has been treated theoretically by Spence, Hull, Hilgard, and others as a cumulative process in which the correct response is strengthened by reinforcements and the incorrect weakened by non-

reinforcements. The success of a choice is determined by the sum of the positive and negative tendencies.

One deduction from such a theory is that reversal of the response required to a stimulus will be increasingly difficult as learning proceeds. The greater the strength of the positive response to a stimulus, the harder it should be to elicit the negative response to it, and vice versa.

This deduction was tested in human discrimination learning by presenting subjects with a list of 15 words, one every two seconds, some of which were to be said and some of which were not to be said. The subjects had to learn for each word whether to say it or not. The correct response was rewarded by a bell. After original learning had proceeded to 11 in 15 and 15 in 15 correct choices in each of two groups, the subjects were asked to make the reverse response to each word.

The results showed positive transfer in both cases to the reversed discriminations, the size of the transfer increasing markedly with the degree of training on the first response. The greater the strength of $S-R_1$ the greater the transfer to $S-R_2$ when R_2 was an alternative incompatible response. This result is out of line with present theories of discrimination learning and suggests that the success of a choice reaction is a function not only of the direction of training but also of the absolute difference, without regard to sign, in the strengths of the alternative reactions. [15 min., slides.]

10:35 A.M. *Perceptual and Intellectual Factors in the Production of Concepts.* EDNA HEIDBREDE, Wellesley College.

This paper reports part of a study on the production of concepts. The study as a whole investigates the hypothesis that the perception of objects is the *dominant* (neither the simplest nor the most primitive) mode of human cognition, and that the production of concepts is a variant of this dominant mode which may be regarded as the *distinctive* (though not dominant) mode of human cognition. Data from previously reported parts of the study indicate a regular and positive relationship between the length of time required for the production of a concept and the extent of the departure from perceptual modes of response its production involves.

The method used throughout the study is a modified form of Hull's procedure, which in turn is a modified form of a memory experiment. The subject's task is to learn the names (nonsense syllables) of successive series of drawings, presented at a uniform rate and in a systematically random order, and so arranged that it is possible, but not necessary, for the subject to respond to similarities from series to series, and eventually to identify each drawing by a name indicating its membership in a class. The procedure provides objective measures of the points in the experiment at which concepts are produced. The subjects were 173 college students, each of whom was studied individually. Each subject, if successful, produced nine concepts.

This paper concerns concepts produced under two contrasting sets of conditions. One set may be described as complex and concrete, the other as simple and abstract. Concepts were more readily produced under

the first set of conditions. The relation of this fact to the general hypothesis will be discussed. [15 min., slides.]

10:55 A.M. *Generalization: Absolute and Relative.* B. R. PHILIP, Fordham University, and H. E. PEIXOTTO, Hunter College.

The problem of this experiment is to study generalization of response and generalization of stimulus as a function of discrimination. Five lists composed of from four to twelve pairs of nonsense syllables were presented to 500 high school students by means of film projection. The results are based on the four longer series. The shortest list being used only for practice.

An average generalization curve was found which was identical for generalization of stimulus and of response. This curve shows no gradient but only uniform generalization. Generalization of both response and of stimulus was differentiated according to absolute and to relative generalization. Discrimination, inherent to the methodology, was identical in both cases, and was found to vary inversely with the difficulty of the syllables and directly with the degree of learning. Absolute generalization of response was found to bear no relation to the degree of difficulty of the syllables, and to increase in the initial stages of learning with a slight decrease in the later stages for the longer series. Relative generalization of response varied directly with the difficulty and decreased with the degree of learning. Absolute generalization of stimulus had a tendency to vary inversely with the difficulty of the syllables while relative generalization of stimulus bore no relation to difficulty. Average generalization varied inversely, while relative discrimination varied directly with length of list.

The results are discussed in relation to those of Gibson on intra-list generalization as a factor in verbal learning. [15 min., slides.]

11:15 A.M. *Intentional and Unintentional Learning as they Affect Retention of Nonsense Syllables.* WILLIAM C. BIEL, Miami University.

This experiment was an attempt to compare the effects of intentional and unintentional learning on the retention of nonsense syllables when the amount of original learning was equal. In previous experiments the number of presentations of the material to be learned has been kept constant and not the amount of original learning.

Twelve nonsense syllables of zero-associational value were presented to two groups of subjects by means of a tachistoscope for .33 second each. One group of subjects ($N = 126$) observed the syllables with its attention directed toward the fulfillment of tasks other than the learning of the syllables; the other group ($N = 72$) observed with the intent to learn. Six easily legible but slightly different types of print appeared in each presentation of the list. The subjects in the first group were instructed to indicate the most legible printing type for each of the 12 presentations of the list. The subjects in the second group were instructed to disregard the printing-type differences and were to learn the 12 nonsense syllables which were presented to them five times. Average immediate recall scores for the two groups were approximately the same.

Forty-eight subjects in the nonintent group were matched with an equal number of subjects in the intent group on the basis of the number of syllables reproduced correctly after presentation of the material.

Retention scores after a 19-day interval showed no statistically significant differences between either the two total groups or the two matched groups.

This study was done in collaboration with Mr. Ronald C. Force. [15 min.]

PERCEPTION AND READING

Saturday, September 5, 9:00 A.M.

Salle Moderne

ROBERT B. MACLEOD, Chairman

9:00 A.M. *Eye-movement Habits in Reading Instrumental and Vocal Music.* O. IRVING JACOBSEN, Shurtleff College.

Eye-movements were photographed during the reading of instrumental music, which included one, two, three and four parts; and of four-part selections made up of whole, half, and quarter notes. These selections were read by poor, average and excellent readers, in order to determine the stages of development in music reading. Analysis was made of each type of reading, which was shown on a chart. The analysis indicated the procedure of reading pitch and rhythm.

The extent of the "eye-performance span" in the readings of each selection was determined also. A comparison was made of reading in the bass clef and the treble clef, and also how notation on leger lines, and accidentals were read.

Eye-movements were photographed also during the reading and singing of vocal music, first by singing the Latin syllables prior to the words, and then by singing the words directly, also by poor, average, and excellent readers. [10 min.]

9:15 A.M. *Fundamental Factors of Comprehension in Reading.* FREDERICK B. DAVIS, Cooperative Test Service of the American Council on Education.

A factorial analysis of nine skills measured by the Cooperative Reading Comprehension Tests and judged to be measures of the most important skills involved in comprehension in reading has been completed. The results indicate that reading comprehension, as measured by the Cooperative Reading Comprehension Tests, is not a unitary ability. Rather, it requires the use of two general mental abilities and several rather specific skills.

The first of the general abilities required is Word Knowledge. This would naturally be expected, since to read at all one must read words. The second of the general abilities is more interesting. It is antagonistic to word knowledge and is composed largely of ability to manipulate verbal concepts and to relate them meaningfully. It seems appropriate to call it Reasoning in Reading.

In addition to these two general abilities, the following fairly specific skills seem to be involved in reading comprehension: (1) Sensitiveness to implied meanings, (2) Ability to grasp the detailed statements in a passage, (3) Ability to infer a writer's intent, purpose, and point of view, (4) Ability to select the appropriate meanings of words in the light of their particular contextual settings, (5) Ability to follow the organization of a passage and to identify antecedents and references in it, (6) Ability to identify the literary devices used in a passage and to apprehend its tone and mood, and (7) Ability to synthesize the main thought of a passage.

The results of this study are of value to clinicians in the diagnosis of reading difficulties and to research workers in the construction and validation of tests of reading comprehension. [15 min., slides.]

9:35 A.M. *Explorations in Reading Patterns.* RUTH STRANG, Teachers College, Columbia University.

Within recent years many persons have become interested in adolescent and adult reading as it operates in daily living. With these reading patterns this investigation is primarily concerned. It was conducted by an interview-testing technique applied to 112 persons of varied age, economic, and occupational status. The collection of data about each subject took, on the average, an hour and a half.

From simple statistical analysis and from "insightful analysis" of the individual cases certain hypotheses emerged. The first of these relates to the complexity and uniqueness of each person's reading pattern. High school students of the same age show markedly different patterns of maturity in their reading interests and proficiency. Persons in the same occupational field vary widely in their choice of reading material, their answer to the question, "What did the author say?" and their rate of reading. Certain reading habits, interests, and abilities, however, are frequently associated in patterns which vary in other respects.

The second hypothesis is that certain persons can comprehend passages they have read better than they can express the author's thought to others. This difference may be due to a number of factors, among them meager stimulation to communication in the environment, foreign background, and laconic habits of thought and expression.

The third hypothesis is that an apparent relation exists between a subject's interest in and enjoyment of an article, his estimation of its difficulty, and his proficiency in reading it.

The fourth hypothesis is that people read with their experience and their emotions. In the majority of cases the freely written responses were colored by the reader's prejudices and personal experiences.

The fifth hypothesis, based on the intensive study of individual cases, suggests that an individual's reading pattern has a control core or radix which, more or less, determines its nature. [15 min.]

9:55 A.M. *A Comparison of "Minimum Visual Distances" Between Two Luminous Points and a Broken Circle under Different Degrees of Brightness.* CURT BERGER, Cornell University.

The experiments to be reported were made to test criticisms of "mini-

imum visual distance" measurements with two small points. Most commonly accepted for such measurements is the broken circle, first suggested by Landolt.

The "resolving power" of optical systems is measured by the minimum distance at which two points appear as separated images. For the human eye which accommodates to the distance, "the minimum visual distance" should increase proportionally. This has been found true with two small luminous points, but the use of two points for such measurements has been criticized because of the smallness of the retinal images and the lack of a secondary control.

To test such criticisms measurements of "the minimum visual distances" were made with two luminous points and also by means of a broken selfluminous circle under different degrees of brightness. In both cases it was found that the function measured *decreases* with increase of illumination, with the points represented by a straight line, with the circle by a curve with a rapid fall in the beginning. The mean deviations of both methods are approximately equal.

It can therefore be concluded: (1) that the increase of "visual acuity" with illumination is mainly due to the use of black symbols; (2) that the use of two luminous points is not less reliable than the use of a broken circle; (3) that a broken circle has no validity for measurements of the "resolving power of the human eye." [10 min., slides.]

10:10 A.M. *The Double Function of Monocular Lines in Binocular Depth Perception.* HANS WALLACH, Swarthmore College.

Tschermak and Henning have proposed an explanation of Panum's phenomenon as the result of a double function of a monocular line. When a single line is presented to the left eye and two parallel lines to the right eye, the two lines which are seen upon fusion often do not lie in the same plane; the right one of the two lines lies farther back. The authors claim that this is due to separate stereo functions of the single line of the left eye with either one of the two lines of the right eye.

Evidence in support of this hypothesis is gained by the addition of identical lines to the monocular diagrams in conjunction with appropriate fixation. If the single line of the left eye is now made to fall between the two lines of the right eye when the two monocular diagrams are superimposed, one line is seen to be in front and the other one in back of the fixated extra line; both of the perceived critical lines display the proper stereo effect although they are in the left eye represented by only one line. When this single line is slightly slanted and the lines in the right eye diagram are vertical, the two lines are seen to slant away from the observer. When the two lines are slightly curved while the single line is straight, both perceived lines form a curve in the third dimension. Such a double function of a monocular line can be ascertained even when one of the partners in the other eye falls entirely on identical retinal points. The theoretical implications of these results will be discussed. [15 min., slides.]

10:30 A.M. *The Influence of Size of Test Stimuli in the Measurement of Stereopsis.* LEONARD C. MEAD and JOHN L. KENNEDY, Tufts College.

The stereograms in the Stereometric Section of the Keystone Diagnostic Series are commonly used measures of stereopsis. Special instruction is given to avoid using the size cues as indicators of distance.

The responses of over 60 subjects to each of the three divisions of the 23 Keystone cards have been analyzed. The ten items of each division have been separated on the basis of the visual acuity (size) required to see them.

Curves of the percentage of correct judgments for each of the four visual acuity levels show that errors increase in relation to both decentration and size. Thus, in spite of special precaution, the "% stereopsis" assigned to a subject is in part dependent upon size of the test items, an unfortunate situation if the experimenter is interested in the measurement of stereopsis alone. [10 min., slides.]

10:45 A.M. *The Inter-society Color Council Color Aptitude Test.* FORREST LEE DIMMICK, Hobart College.

In February of 1940, the Inter-Society Color Council was requested to prepare a test suitable for evaluating workers in industries where an essential requirement is accurate discrimination of small color differences.

A test has been devised and standardized which meets the original requirements and offers a tool for the study of "color aptitude in other applications." This test consists of 40 matching judgments which require a very fine degree of discrimination. The colored materials were specially prepared by Mr. Carl E. Foss from the most permanent substances available. They are held to rigid spectrophotometric standards and are reproducible.

The test utilizes saturation series of two reds chosen because they offer diagnostic confusions to color blind subjects. Later forms will include other color dimensions.

The test has been made up in three degrees of difficulty. A short form serves as a screening test for complete red-green deficiency. An intermediate form diagnoses degrees of color deficiency from low normal through anomalous to complete R-G deficiency. The complete aptitude test has been standardized on a large group of the "general population" consisting of college students, office workers, and semi- and unskilled workers, and upon groups of trained color workers in two branches of the textile industry.

Two procedures have been standardized; one which requires completion of 40 matches and corrects the score on the basis of the time taken; and one which permits the subject to work on the test for a limited period of time.

On the basis of present results, percentile ratings of various scores have been plotted for the "general population" group and for the "color workers" group. [15 min.]

11:05 A.M. *Binaural Interaction and the Nature of Pitch Perception.*
W. R. THURLOW, Princeton University.

The hypothesis has been advanced that the change of pitch with intensity is due to a shift in the position of maximal stimulation of the basilar membrane. A method of testing this hypothesis is to hold the position of maximal stimulation constant while varying other factors, and observe whether a change in pitch takes place. This can be accomplished by introducing by earphone a tone in one ear of given frequency and given high intensity; then presenting this tone together with a tone in the opposite ear of the same frequency and intensity, and noting whether a change in pitch occurs: when one tone is added to the other, no change in the position of maximal stimulation occurs, but a change in the pattern and number of nervous impulses does occur. The method just outlined was adopted in the present experiment.

Results showed that at the high intensity used there was a very definite pitch shift when the tone of equal frequency and intensity was added in the other ear. Further experimentation showed that a shift in the pitch of the monaural tone could be produced by introducing a tone of different frequency in the opposite ear, provided both tones were of high intensity. The pitch shift, expressed as a function of the frequency of the affected tone, regardless of the frequency of the affecting tone, is generally similar to that gained from experiments on the pitch shift caused by increasing intensity.

The results of this experiment indicate that a change in pitch occurs in the absence of a shift of the position of maximal stimulation on the basilar membrane; they indicate further that the central interaction is not of a spatial character. [15 min., slides.]

11:25 A.M. *The Role of Audible Frequencies in the Perception of Obstacles by the Blind.* MILTON COTZIN, Cornell University.

As we previously found, the blind perceive obstacles by means of aural mechanisms. This study deals with an analysis of the role played by the various audible frequencies.

Four observers were used—two totally blind and two with normal vision. After preliminary practice series which duplicated the procedure and corroborated the results of our earlier study, the main experiments were undertaken.

A cart, running on piano wire suspended tautly through the center of the experimental room, carried a loud-speaker and semi-directional microphone. This cart was driven by a reversible DC motor whose speed could be controlled by *O* sitting in the soundproof room. Sounds sent into the loud-speaker and picked up by the microphone were transmitted through a 20-watt power amplifier and an attenuator to high fidelity ear-phones worn by *O*.

The movement of this apparatus was so noiseless that all the *O*'s in the control experiments failed to detect the wall in every trial. All the *O*'s were successful in perceiving the wall when a "thermal noise" was used, *i.e.* they stopped the moving cart at a far and near approach. The *O*'s

reported a definite rise in pitch in the "thermal noise" as the loud-speaker neared the wall.

When pure tones of low frequencies from an RCA Beat Frequency Oscillator were used, the O's were unable to perceive the wall, i.e. they failed to stop the cart before it collided with the wall.

Intensive limens were computed by the continuous method of limits when the "thermal noise" was 6', 3', and 0' from the wall. There were no reliable differences in the loudness of the noise when it was 6' or 0' from the wall. [15 min.]

11:45 A.M. *A Study of Discriminative Serial Action.* HERBERT B. WEAVER. University of Pennsylvania.

The purpose was to study discriminative serial action, with special emphasis on the long response times called by Bills and other mental blocks.

One hundred college students were tested on a discriminative serial action task consisting of manual response to color. Their response times (1000 for each subject) were automatically recorded and individually measured, correct response times and error times being recorded separately. The performance was analyzed for speed, accuracy, variability of response times, and frequency of long response times (defined as response times equal to or greater than twice the median response time). Some of the subjects were retested one month later.

All performance measures were found to be highly reliable as shown by test-retest correlation. No sex differences were found for any of the performance measures. Performance was independent of scholastic aptitude. All performance measures except accuracy improved upon retest. Speed of response was unrelated to frequency of long response times; variability of response times was closely related to frequency of long response times.

Response times in the immediate neighborhood (two before to two after) of long response times and of errors were averaged separately for each position for each subject, and the combined averages for all subjects were studied. Response times in the neighborhood of long response times were found to have a characteristic pattern with respect to the mean of all response times; the same was true of response times in the neighborhood of errors. The two patterns are qualitatively distinct, however. Interpretation of the findings is offered. [15 min., slides.]

PHYSIOLOGICAL

Saturday, September 5, 9:00 A.M.

Parlor A

JOHN F. DASHIELL, Chairman

9:00 A.M. *Pupillary Responses as Indicators of Deception.* F. K. BERRIEN, Colgate University.

This study compared the utility of pupillary and blood pressure responses as indicators of deception. The apparatus simultaneously re-

corded both actions—the former by means of a manually operated pen attached to a telescope whose verticle cross-hair was kept tangent to the subject's pupil by the examiner. Sixty subjects were examined in pairs, one in each pair having committed a "laboratory crime." Correct identification of the "criminal" based on interpretation of both records occurred in 76 per cent of the cases, blood pressure usually, but not always, being the more accurate indicator. Some types of pupillary responses recorded do not conform with the prevalent notions of the action of the pupil in emotion. Advantages and disadvantages in the use of pupillary responses for deception studies will be mentioned. [10 min., slides.]

9:15 A.M. *A Technique for Recording Retinal Action Potentials from the Human Eye.* LORRIN A. RIGGS, Brown University.

Continuous electrical contact with the cornea is maintained by the use of a contact lens as a mount for a recording electrode. When the eye is stimulated by light, the resulting action potentials of the retina are impressed upon this electrode over the path of low resistance through the eyeball. The form and magnitude of these potentials, suitably amplified and photographically recorded, provide an index of the response of the eye itself without the complicating influence of the higher visual centers. It has thus been possible to compare foveal and peripheral responses and to study the intensity and adaptation effects in the eye.

The experiments were conducted in the Psychological Laboratory of the University of Vermont under a grant for the necessary apparatus by the National Research Council. [10 min., slides.]

9:30 A.M. *Varying Aspects of Attention as Indicated by Electroencephalographic Recordings.* TRIGANT BURROW and WILLIAM GALT, The Lifwynn Foundation.

Investigations of neuromuscular patterns of tension and particularly of tensional modifications in relation to neurotic disorders led to a series of experiments in the field of attention by the scientific staff of The Lifwynn Laboratory. These experiments consisted, in part, of series of records of brainwave patterns secured under different conditions of attention. In order to check the results with the frequency spectra as traced by the Grass analyzer, the writers repeated certain of their electroencephalographic tests at the Neurological Unit of the Boston City Hospital. In the course of these experiments with neuromuscular modifications in relation to attention we came upon several brain-wave patterns indicative of different aspects of the attentive process. This paper written at the suggestion of Dr. Frederic A. Gibbs, through whose courtesy the experiments were undertaken, presents the major indications of these aspects of attention as shown by the electroencephalograph.

Cortical activity was studied in the right and left motor and occipital regions, and simultaneous spectra were recorded from 2 regions and, on occasion, from three. Series were made both with the eyes open and with the eyes closed. Records were taken under conditions of mental work, relaxation, during reading, and in cotention. Cotention is the name given by the senior author to a tensional pattern in which symbolic or projective

attention is suspended. We have employed this phase of attention as part of our technique in correcting mental distractibility in both normal and neurotic subjects. This modification is brought about as a result of individual training in oculomotor balance. Slides will be shown illustrating typical changes in each attentional mode. [15 min., slides.]

9:50 A.M. *The Reliability of Electrocardiograph Variables.* W. EDGAR VINACKE and RAYMOND FRANZEN, Research Division, Civil Aeronautics Administration.

The electrocardiograph technique has long been used in psychology, physiology, and particularly medicine without any adequate attempt to determine the reliability of variables appearing on the records. The present study analyzes these variables statistically to see which are reliable.

Two tests were obtained from 95 high school and 320 college students so that half of the retests were administered by the same examiner and half by an examiner different from the one giving the first test. The Sanborn stethocardiograph which records simultaneously the stethogram and E.K.G. was used. Each time the four leads were taken followed by a 15 second period of exercise after which the four leads were retaken. Heart sounds were recorded in a different area for each lead. Variables analyzed were heart-rate, duration P-wave, PQ interval, QRS complex, ST interval, T-wave, and TP interval and duration of sounds. Using linear correlation the following questions were answered: (1) What is the day-to-day variation? (2) What is the variation between examiners? (3) To what extent do errors of quantitative translation influence reliability? Each lead for each variable before and after exercise was so evaluated.

The results show that most of the measurements based on a single beat no matter how chosen are not reliable, but when based on the sum of three beats they are for duration of PQ, QRS, and ST and for all four amplitudes. No reliable measures were found for the stethogram. Quantitative translation was accurate and change of examiner found to have little effect. Using measurements from various leads the reliable factors were intercorrelated and an attempt made to work out statistical indices of abnormality.

This research was carried out by the W.P.A. in conjunction with the C.A.A. pilot testing program. [15 min.]

10:10 A.M. *Differential Physiological Responses to Ideational and Startling Sound Stimuli in Adolescents.* NATHAN W. SHOCK, University of California and the National Institute of Health, Bethesda, Md.

Changes in pulse rate and skin resistance following association word stimuli and startling auditory stimuli were measured in 44 boys and 35 girls with a mean age of 16.5 years (S.D. 0.5 yr.). Continuous records of pulse rate and changes in skin resistance of hand and foot were made on a photokymograph. Pulse rates were counted for each of five three-minute intervals following presentation of the stimulus. Changes in skin resistance were measured in ohms. Twelve words, chosen for their pleasant, unpleasant or indifferent emotional connotations were presented at thirty second intervals to each subject. A total of eight auditory stimuli of

varying degrees of intensity and quality were also presented at one-minute intervals.

Analysis of the results showed that startling auditory stimuli produced greater decreases in skin resistance than did ideational stimuli consisting of association words. In contrast, the ideational stimuli produced greater increases in pulse rate than did the startling auditory stimuli. [15 min., slides.]

10:30 A.M. *The Dependence of Psychological Development on Nutritional Deficiencies during Prenatal Life.* GEORGE L. KREEZER, Cornell University.

This report is intended to describe work in progress. The investigation was undertaken: (1) To obtain evidence bearing on the effect of nutritional deficiencies engendered by the war on the psychological development of the next generation, and (2) to determine whether mental deficiency may be produced experimentally by nutritional deficiencies in the mother during the gestation period. The rat is used as the experimental animal. The basic procedure consists in limiting some essential nutritional component during gestation and comparing the psychological performance of the offspring with that of a control group. The psychological tests are made up of a battery intended to sample different capacities—learning and problem solving, emotional traits, activity level, drive, and susceptibility to behavioral disorders. Nutritional factors so far investigated have been vitamin B₁ and calorie intake. Preliminary results will be reported. [10 min., slides.]

ABNORMAL

Saturday, September 5, 9:00 A.M.

Parlor B

HARRY HELSON, Chairman

9:00 A.M. *Normal vs. Schizophrenic Perception of Similarities.* DAN L. ADLER, University of Rochester.

The following study is based upon the hypothesis that one can distinguish between normals and schizophrenics on the basis of differences in their conceptualization of similarities. It was believed that schizophrenics tended to categorize as similar those items which look alike, that is, have point to point similarities. Normals, it was thought, tended to see as similar those things having the same meaning, that is, functional rather than peripheral similarities.

Sets of pictures were designed to test this hypothesis. Fifty normal college sophomores and 50 schizophrenic subjects were given opportunity to match each of eight master pictures with either: a) pictures peripherally but not functionally similar to the master picture, or b) pictures functionally but not peripherally similar to it, or c) pictures neither functionally nor peripherally similar to it.

Scoring reported here is based on the frequency with which functionally similar pictures were matched to the master.

Odd-even reliability of the choices was $.914 \pm .01$.

(1) Normals made significantly more choices of the functionally similar type than did the schizophrenics. Out of a maximum score of eight, the mean score of the normals was 7.45; of the schizophrenics was 3.57.

(2) Within the paranoid and hebephrenic groups of schizophrenics there is a marked correlation between absence of deterioration and frequency of matching based on functional similarity.

(3) Related to this, patients with superior prognosis made more functionally similar choices than did patients with poor prognosis. Thus, on the basis of psychiatrists' judgment, patients expected to be discharged within the month had a mean score of 5.43; patients expected to be discharged within a year had a mean score of 3.33; patients classified as probably incurable a mean score of 2.80.

This study is being carried on with the collaboration of Miss Jean Neasmith, University of Rochester. [15 min., slides.]

9:20 A.M. *Deterioration in Schizophrenia as Reflected in Performance on a Variety of Psychological Tasks.* DAVID SHAKOW, Worcester State Hospital.

This report is concerned mainly with the analysis of the relationship between two ratings of deterioration and the performance on several psychological tests of 25 schizophrenic patients. The psychological studies, carried out ten years ago, include the Stanford-Binet scale, the Army Alpha test, the Kent-Rosanoff Association test, the Rorschach test and various aspects of motor function, including steadiness, speed of tapping, reaction time and learning. The first of the ratings, "contemporary deterioration," is based on the average of three ratings given independently by psychiatrists at the period of the psychological studies. The second of the ratings, "present deterioration," was obtained by averaging the rank orders in which the patients were placed by a group of six experienced persons on the basis of present status.

The correlation between the two measures of deterioration, after the lapse of approximately 10 years, is .73. Certain variables derived from the devices employed give coefficients in the range from .45 to .70 for both measures of deterioration. These are: mental age and vocabulary on the Binet, Alpha sub-test 3, 0+%; in the Rorschach test and simple auditory reaction time. Others give correlations of this magnitude for present deterioration alone: Alpha total score, discrimination visual reaction time and prod learning time. No variables give correlations of this magnitude for contemporary deterioration alone.

The implications of the above relationships for the understanding of deterioration, the light which the present findings throw on some previously proposed measures of deterioration and the suggestions which arise from the study for the construction of prognostic devices of deterioration in schizophrenia are considered. [15 min., slides.]

- 9:40 A.M. *A Laboratory Method for Diagnosing Manic-Depressive Depression.* EDWARD I. STRONGIN, College of Medicine, Columbia University and LELAND E. HINSIE, New York State Psychiatric Institute and Hospital, New York.

In a previous report it was shown that the parotid gland secretory rate of patients with manic-depressive depressions was lower than that of the lowest "average normal" individual. The present investigation set out to determine if this low rate was found in all types of depressions or whether it was characteristic of only the manic-depressive depressions. A preliminary study on 50 cases was reported. This is a continuation of the investigation on an additional group where all the tests were performed by a technician as a part of the routine in the New York State Psychiatric Institute.

The findings can be summarized as follows: (1) Parotid gland rate determinations were made on a series of undifferentiated depressions before they were clinically studied. If the readings were below an average of .01 cc. per five minutes over a test of a half hour duration the depression was recorded tentatively, in the experiment records, as a manic-depressive depression. No other differentiation was attempted. The results were then filed away for comparison with clinical diagnosis. (2) The clinical diagnosis in each instance was later made by two psychiatrists working independently. The diagnosis of the two psychiatrists were then compared. When an agreement on the diagnosis occurred, the case was included for report in this communication. These clinical diagnoses were then compared with the laboratory diagnoses based on the parotid secretory rate. (3) It was found that the laboratory diagnosis based on the parotid gland determination offered a quick objective means of making a diagnosis. (4) The parotid secretory rate is inhibited in the very early stages of the disorder before it is possible to make a definite diagnosis of manic-depressive depression by the usual psychiatric procedures. (5) Secretory inhibition prevails during the daily mood fluctuations of the patient but the rate does return to the normal range when the patient recovers from the depression. (6) The rise of the secretory rate when the depression abates may be very sudden. (7) The parotid secretory test can be accomplished within an hour with simple inexpensive apparatus, involving little technical training. [15 min., slides.]

- 10:00 A.M. *A Study of the Use of Recent Memory Tests in the Measurement of Intellectual Deterioration.* S. MEDFORD WESLEY, Yale University.

In order to determine the extent to which objective tests of recent memory might be used as an aid in the diagnosis and measurement of intellectual deterioration, a battery of seven recent memory tests was devised. The series consisted of tests making use of blocks, objects, a story, paired associates, photographs of faces, color order reconstruction, and a figure-ground test. The series required 30 minutes' administration time. The average intercorrelation of the seven tests was $+ .30$.

This battery of memory tests along with the Stanford-Binet Vocabulary test (1937) was given to a group of 50 patients with diagnoses of or-

ganic brain disease of types generally believed to involve intellectual deterioration, and to a group of 50 normal control cases matched with the deteriorates on the basis of age, education, and occupational level.

The scores on the sub-tests were weighted according to the extent to which each of the tests discriminated the two groups of subjects. In order to take into account the factors of age and former general intellectual level in interpreting the score on the memory test as a whole, the multiple regression equation for the total memory test score on age, grade level, and vocabulary was computed for the control group. The discrepancy between the predicted memory test score and that actually obtained was then determined for each of the 100 subjects. Taking this discrepancy as a measure of deterioration, it was possible to set a critical score such that the deteriorated cases could be differentiated from the control subjects with an accuracy of better than 95%. The data also showed significant differences between certain of the diagnostic sub-groups of subjects. [15 min.]

10:20 A.M. *Wechsler-Bellevue Test Results in Senile and Arteriosclerotic Patients.* A. I. RABIN, New Hampshire State Hospital.

Wechsler's list of tests which do and do not hold up with age is largely based upon cursory observation since his standardization data did not include norms for the older age ranges (60+).

The present study attempts to check the test-score pattern in senility as such and compare it with the pattern observed in patients with cerebral arteriosclerosis in whom there is evidence of "interference with cerebral circulation."

Our data was obtained from 84 records on patients between the ages of 60 and 80. Thirty-seven of this group were sclerotic.

The following tentative conclusions seem to be warranted: (1) The object assembly and picture completion tests, contrary to Wechsler, do not hold up with age. (2) Arithmetic and memory for digits are more affected in arteriosclerosis than in the other senile conditions. (3) The arteriosclerotic group shows a comparatively well-preserved "abstract" (Goldstein) approach as evidenced by the results on the block design and similarities tests. [10 min., slides.]

10:35 A.M. *Audiogenic Seizures Elicited in Rats by Tones of Low Frequency.* CLIFFORD MORGAN and ROBERT GALAMBOS, Harvard University.

It has previously been shown that pure tones can elicit audiogenic seizures in rats, but that high frequencies in the neighborhood of 20,000 cps are more effective than low ones. The threshold of audibility has also been shown to be lowest at these high frequencies. One might expect, therefore, that the elicitation of seizures is a function of intensity above the rat's threshold of hearing. This hypothesis was attacked in the present experiments by studying seizures elicited at low frequencies.

Pure tones of low frequency (500 to 10,000 cps) and high intensity, it was found, elicit from rats typical audiogenic seizures after a latent period of about 45 seconds. In every respect the behavior is like that following

stimulation with keys, air-blasts, etc. The effectiveness of the different tones varies; 4000 cps is most effective (14.9 per cent), 500 cps is next (6.7 per cent), but no pure tone is as effective as noises with high-frequency components (*i.e.*, keys). Considering these results in relation to the acoustic intensities at which they occurred and to the rat's auditory threshold at different frequencies, one can draw the conclusion that sensation-level, not frequency, is the important aspect of the stimulus for eliciting epileptoid behavior in rats.

Further experiments with steady vs. interrupted tones (4000 cps) gave the following results. Interrupted tones ($\frac{1}{2}$ sec. on, $\frac{1}{2}$ sec. off) are as effective as steady tones, but increasing the silent period ($\frac{1}{2}$ sec. on, $\frac{3}{4}$ sec. off) reduces the number of seizures obtained. The latent period before the epileptoid behavior appears is the same, however, regardless of whether the tone is interrupted or steady.

These two experiments, together with other findings, lead to a general theory of the neural processes underlying the seizures. [15 min., slides.]

10:55 A.M. *The Relation of Audiogenic Seizure to Blood Cholesterol, Sugar, Protein, and Opacity.* OLIVER L. LACEY, Cornell University.

Reports in the psychiatric literature indicate that mental disorder is dependent in some degree upon blood composition. The striking similarity of the behavior of the rat during audiogenic seizure to certain psychotic symptoms suggests that susceptibility to seizure may likewise be a function of the constitution of the blood.

An investigation of this possibility was undertaken by comparison of seizure-susceptible and non-susceptible animals with respect to level and variability of blood cholesterol, sugar, protein, and red cell concentration.

The results point to three differences in level of blood constituents between the two groups of animals. The susceptible animals were higher than normal in blood sugar and red cell concentration, and lower in total protein. The groups differed in variability with respect to cholesterol, sugar and protein. In each of these three substances the variation of the seizure-susceptible animals was greater than that of the non-susceptible group. The significance of these results will be discussed. [15 min., slides.]

11:15 A.M. *The Effect of Electroshock Therapy on "Interference" in Memory.* JOSEPH ZUBIN, New York State Psychiatric Institute and Hospital.

In a previous study we reported that the saving method shows no retention while the recognition method shows almost unimpaired retention after shock. In order to examine the discrepancy between these two methods a study of the interference effect was undertaken. Paired associates (household commodities paired with pseudobrand names) were taught before shock and again after shock and direct interference was introduced by utilizing the same commodities each time. Under control conditions the interference is marked and we had expected that when shock is interpolated the interference would disappear. Instead it was accentuated. Our tentative conclusion is that electroshock treatment disorganizes but does not destroy the memory traces.

The author wishes to acknowledge the assistance of Nancy Newbert and R. F. Hefferline. [10 min., slides.]

RORSCHACH

Saturday, September 5, 9:00 A.M.

Parlor C

WAYNE DENNIS, Chairman

9:00 A.M. *Stability of the Personality Structure.* S. J. BECK, Michael Reese Hospital and Northwestern University.

This investigation is concerned with the problem of permanence or fluidity of personality structure in adults. Personality patterns were studied in individuals examined more than once with the Rorschach test, and observed clinically over periods of time. Distribution: shock treatment in schizophrenia, nine patients, 20 Rorschachs; in other conditions, eight patients, 17 Rorschachs; without shock but receiving adjustive therapy from psychiatrists or psychiatric social workers, 18 patients, 40 Rorschachs. Among the latter are included (a) extreme manic excitement and depressed states (one patient); (b) before outbreak of schizophrenia and in the psychosis (two patients); (c) in the psychosis and later in remission; (d) neurosis; (e) before psychoanalysis and in an interrupted phase of it in an adult of very superior level. Total: patients, 35; Rorschachs, 77. Intervals between Rorschachs ranged from eight days to 30 months. Ages: from 15 years, 5 months; only six were under 20.

Results: except in the manic-depressive case, main outlines of the Rorschach patterns are always recognizable as belonging to the same individuals but there are always changes in important features. E.g., following shock, most patients improve in intellectual control, usually at the cost of richness in mental life (impoverished content, reduced productivity, less affect and fantasy expression). The changes are thus at the "periphery" rather than the "core" of the personality. The two Rorschachs of the manic depressive patient were as from two totally different persons.

Conclusion: the personality at the ages indicated follows permanently grooved-out channels. Even such dramatic treatment as shock does not refashion it basically. [15 min., slides.]

9:20 A.M. *The Effect of Morphine upon the Rorschach Pattern in Post-addicts.* RALPH R. BROWN, United States Public Health Service Hospital, Lexington, Kentucky.

The Rorschach Test was administered under morphine and non-morphine conditions to 22 drug addict patients who had been abstinent from morphine for at least six months. Patients were in good physical health and of average intelligence. Morphine was administered in amount sufficient to produce a satisfactory psychological state as judged by the individual subjects. The average dose was 34 milligrams, with a range from 15 to 70. It was found that the Response Total, Details, Rare Details, and Human Movement Responses were increased. Responses to

color were also slightly increased, but the *erlebnistypus* shifted in the direction of introversion. Neurotic signs were reduced by morphine. Signs of intellectual control, organizational energy, and originality were not affected. It therefore appears that under morphine the personality of post-addicts changes in the direction of introversion in the sense of increased fantasy living, with attention being directed toward inner more than to outer stimuli. [10 min., slides.]

9:35 A.M. *"Signs," "Syndromes," and Individuality Patterns in Rorschach Reactions of Schizophrenics.* BRUNO KLOPPER, Teachers College, Columbia University, and L. CLOVIS HIRNING, Grasslands Hospital, Westchester County, New York.

During the last five years various attempts were made to facilitate a clinical diagnosis based on the Rorschach reactions of various clinical subjects through the use of "signs," *i.e.*, Rorschach characteristics, which occurred significantly more frequently in a specified group of clinical subjects than in any control group.

Five such "sign" patterns have been published and discussed in the literature: organic, neurotic, schizophrenic, general maladjustment and general adjustment "signs." These five "sign" patterns were applied to the Rorschach records of 20 diagnosed schizophrenics, 10 of whom were paranoid schizophrenics and 10 catatonic or hebephrenic schizophrenics.

The possibilities and limits of the "sign" approach are discussed in the light of the results of this application. An attempt is made to determine what qualitative Rorschach elements beyond the traditional "signs" in these records are characteristic for schizophrenics in general and for the two sub-groups in particular. The term "syndrome" is proposed for these Rorschach elements parallel to the clinical use of this term.

A detailed comparison of the Rorschach findings with the case history and clinical observations tries to establish to what extent the presence of "signs" or "syndromes" depends on the individual personality constellation. [15 min., slides.]

9:55 A.M. *The Development of a Group Rorschach Technique in a Federal Penal Institution, With Special Reference to the Problem of Psychopathic Personality.* ROBERT M. LINDNER, KENNETH W. CHAPMAN, and EDWARD C. RINCK, United States Public Health Service Hospital, United States Penitentiary, Lewisburg, Pennsylvania.

The purposes of the present study were two-fold. The first aim was to survey the possibilities of the group Rorschach method as an instrument for preliminary screening of large groups of admissions to Federal penal institutions, in order to eliminate from time-consuming procedures those who do not require special attention. The second aim was to seek out critical factors in the Rorschach patterning of *psychopathic personalities*.

Because of the special circumstances under which Rorschach examination of inmates is conducted, and because of the personalities of such testees, the method as it developed differs considerably from other group techniques. It places greater responsibility upon the examiner than do

current methods, and it introduces a number of novel factors, among which are an "orientation blot" and the rotation of slides. Instructions for preparation of experimental accessories are included, and experimental procedures outlined.

Reliability studies were made for each Rorschach variable that appeared in sufficient frequency to allow of statistical treatment. Correlation coefficients obtained illustrate the feasibility of substituting the group for the individual method of Rorschach testing in penal institutions such as the one in which these studies were made. This is supported by observed similarities between the records so far as clinical impression is concerned.

To the moment of writing, the search for critical factors to distinguish psychopaths from normal subjects has been unrewarding. Trends, however, are apparent, and because of this the scope of the research has been extended. [15 min., slides.]

10:15 A.M. *The Validity of the Rorschach Group Method.* MARGUERITE R. HERTZ, Western Reserve University.

An experiment is in progress at the Brush Foundation to convert the Rorschach Method into a practical, reliable, and valid group method. The test has been administered individually and as a group technique by means of lantern slides to two classes of college girls, 73 subjects to date. Report has been made elsewhere on the technical aspects of group procedure. The present paper discusses results on validity.

Validity is judged by the extent of agreement between group and individual records and by the success of the group test in distinguishing the more neurotic, unstable, inhibited, and anxious types of personality.

Scores based on formulae developed for various traits,—intellectual control, stereotype-originality, combinative, abstractive and generalizing ability, analysis-synthesis, control-spontaneity, emotional stability, extratensive adaptability, extratensiveness-introversiveness, and dilation-constriction—tend to fall in similar ranges for individual and group tests. Profiles of adjusted and maladjusted types of personality likewise show high percentage of agreement. Thus anxious personalities revealed by individual tests are likewise shown by group tests. In the former, however, there may be 8 indicators while in the latter, only 5. Finally, total personality pictures developed independently from individual and group records show agreement in many general traits of personality.

Thus preliminary results with college girls warrant the expectation that certain important aspects of personality can be revealed in a group record. The group technique can classify college girls according to dominant personality traits and can differentiate the more neurotic, anxious, richly expansive and controlled personality. Group results cannot be viewed as unequivocal determination of the subject's personality, however, but only as a rough characterization. Where gross deviations are revealed, an individual examination can be given and the more subtle and finer nuances of personality ascertained. [15 min., slides.]

10:35 A.M. *Influence of Time Factor on Rorschach Performance.* EDITH WEISSKOPF, Briarcliff Junior College.

How does pressure of time affect Rorschach performances? The Rorschach was given to each subject once under normal conditions, once with exposure only ten seconds for each card.

The personality revealed by the short Rorschach differs from the one revealed by the long Rorschach: The form per cent decreases with the short method. Also most other changes move towards more implusiveness with the short method. There are three possible interpretations of the results: (1) The short Rorschach gives a truer personality picture, eliminating forced, artificial responses (most of which are form responses). (2) The two methods reveal different layers. The short method reveals the deeper layer, appearing only under pressure. The comparison enables prediction of a subject's reaction to pressure, thus filling an urgent need in selecting service men. (3) The far-reaching changes produced by different timing limit the validity of the Rorschach method. [10 min., slides.]

CELEBRATIONS

CELEBRATION OF THE CENTENARY OF THE BIRTH OF WILLIAM JAMES

September 2, 1942: 8:00 P.M.

Memorial Hall, Harvard University, Cambridge

JAMES R. ANGELL, Chairman

R. B. PERRY: James, the Psychologist: the Philosopher's View

E. L. THORNDIKE: James' Influence on the Psychology of Perception
and Thought

G. W. ALLPORT: The Productive Paradoxes of William James
Brief Reminiscences by Others

CELEBRATION OF THE SEMICENTENARY OF THE AMERICAN PSYCHOLOGICAL ASSOCIATION

September 3, 1942: 8:00 P.M.

Memorial Hall, Harvard University, Cambridge

C. E. SEASHORE, Chairman

S. W. FERNBERGER: The First Fifty Years: 1892-1942

R. S. WOODWORTH: The Adolescence of American Psychology
Brief Reminiscences and Remarks by Others

EXHIBIT OF MANUSCRIPTS AND LETTERS OF WILLIAM JAMES

The HOUGHTON LIBRARY

the new easterly annex of the WIDENER LIBRARY

Harvard University, Cambridge

Open 9-5 daily, and also 7-8 on September 2 and 3
before the Celebrations in Memorial Hall

RESEARCH AND INSTRUCTIONAL FILMS

Wednesday, September 2, 1:15 P.M.

and

Friday, September 4, 1:15 P.M.

Ball Room Assembly

J. GARTON NEEDHAM, Chairman

Note: The showing of films will not be accompanied by verbal descriptions, since proper titles in the films will be adequate.

Adaptive Behavior in Golden Mantled Ground Squirrels. L. F. BECK, University of Oregon. (20 min.)

Cryptic Automatic Writing by a "Multiple Personality." P. L. HARRIMAN, Bucknell University. (15 min.)

Finger Painting: The Use of Plastic Materials by Young Children. L. J. STONE, Vassar College. (35 min.)

Learning in a 23 Year Old Boy After 17 Years "Isolation." DORIS TWITCHELL-ALLEN, Glendale, Ohio. (35 min.)

Matching and Sorting Performance by Rhesus Monkeys. BENJAMIN WEINSTEIN, University of Wisconsin. (20 min.)

ROUND TABLES

WEDNESDAY, SEPTEMBER 2, 1942, 4:00 P.M.

Psychology and the War, Panel I. LEONARD CARMICHAEL, Director, National Roster of Scientific and Specialized Personnel; Chairman, Division of Anthropology and Psychology, National Research Council; *Chairman.* Georgian Room. Among those who are expected to participate are: J. G. Beebe-Center, Chairman, Committee on Latin-American Psychology; W. V. Bingham, Chairman, Advisory Committee to the Adjutant General's Office on Classification of Military Personnel; C. W. Bray, Research Investigator, Committee on Human Aspects of Observational Procedures, National Research Council; K. M. Dallenbach, Chairman, Emergency Committee in Psychology; J. W. Dunlap, Director of Research, Committee on Selection and Training of Aircraft Pilots; S. W. Fernberger, Technical Aide, National Defense Research Committee; Lt. Colonel J. C. Flanagan, Army Air Forces; E. R. Guthrie, Chief Consultant Psychologist, Psychological Warfare Branch, Military Intelligence Service; Lt. Commander J. G. Jenkins, USNR, Bureau of Aeronautics; R. Likert, Head, Division of Program Surveys, Bureau of Agricultural Economics, Department of Agriculture; W. R. Miles, Committee on Selection and Training of Aircraft Pilots and Committee on Aviation Medicine, National Research Council; L. J. O'Rourke, Research Psychologist, U. S. Civil Service Commission; Major M. W. Richardson, Adjutant General's Office; C. L. Shartle, Chief, Occupational Analysis Section, U. S. Employment Service; R. C. Tryon, Chief, Psychology Division, Office of the Coordinator of Information; M. S. Viteles, Chairman, Committee on Selection and Training of Aircraft Pilots; R. S. Woodworth, Chairman, Committee on Child Development

THURSDAY, SEPTEMBER 3, 1942, 1:15 P.M.

The Activities of the Office of Psychological Personnel. STEUART H. BRITT, *Chairman.* Salle Moderne. Question and answer period.

THURSDAY, SEPTEMBER 3, 1942, 2:00 P.M.

Recent Trends in Psychology in the Latin-American Countries. J. B. BEEBE-CENTER, *Chairman.* Ball Room Assembly. Details to be announced. It is expected that the Round Table will include communications from a number of Latin American psychologists.

Symposium on Visual Fatigue. ROSS A. MCFARLAND, *Chairman.* Parlor A. Participants: Adelbert Ames, Leonard Carmichael, David G. Cogan, W. F. Dearborn, Alfred H. Holway, Walter Miles, Robert Thorndike, M. A. Tinker.

Some Psychological Problems of Training for Leadership in a Democracy. RONALD LIPPITT and L. K. HALL, *Co-chairmen.* Parlor B. Arranged by the Program Committee of the Society for the Psychological Study of Social Issues and the American Association for the Study of Group Work. The following are expected to participate: Alex Bavelas, Hedley

S. Dimock, L. M. Hanks, Jr., Robert Heining, Kurt Lewin, Fritz Redl.

Recent Advances in Motivation. E. R. HILGARD, *Chairman*. Parlor C. Arranged by the Program Committee of the National Institute of Psychology. Participants: Robert R. Sears on *Secondary Motives and Personality* and Edward C. Tolman on *A Need Conversion Diagram*. (slides)

FRIDAY, SEPTEMBER 4, 1942, 4:00 P.M.

Psychology and the War, Panel II. KARL M. DALLENBACH, *Emergency Committee in Psychology, Chairman*. Georgian Room. Among those expected to participate are: Leonard Carmichael, *Chairman*, Division of Anthropology and Psychology; E. G. Wever, *Chairman*, Sub Committee on Perceptual Problems; M. R. Trabue, *Chairman*, Sub-Committee on Learning and Training; S. H. Britt, *Chairman*, Sub-Committee on Listing of Personnel in Psychology; E. A. Doll, *Chairman*, Sub-Committee on Problems of Mental Deficiency; Ruth S. Tolman, *Chairman*, Sub-Committee on Service of Women Psychologists in the Emergency; G. W. Allport, *Chairman*, Sub-Committee on Defense Seminars; H. E. Burtt, *Chairman*, Sub-Committee on Psychological Aspects of Readjustment; C. C. Pratt, *Chairman*, Sub-Committee on Psychological Research Projects; E. G. Boring, *Chairman*, Sub-Committee on Textbook of Military Psychology.

BUSINESS MEETINGS AND PRESIDENTIAL ADDRESSES

ANNUAL BUSINESS MEETING
OF THE
AMERICAN ASSOCIATION FOR APPLIED PSYCHOLOGY
WALTER V. BINGHAM, *President*
TUESDAY, SEPTEMBER 1, 8:00 P.M.
GEORGIAN ROOM

ADDRESS OF THE PRESIDENT
AMERICAN ASSOCIATION FOR APPLIED PSYCHOLOGY
*THE IRREPRESSIBLE CONFLICT BETWEEN
PRACTICE AND RESEARCH*
WALTER V. BINGHAM
WASHINGTON, D. C.
MONDAY, AUGUST 31, 7:00 P.M.

ANNUAL BUSINESS MEETING
OF THE
SOCIETY FOR THE PSYCHOLOGICAL STUDY OF
SOCIAL ISSUES
KURT LEWIN, *Chairman*
TUESDAY, SEPTEMBER 1, 8:00 P.M.
SALLE MODERNE

ADDRESS OF THE CHAIRMAN
SOCIETY FOR THE PSYCHOLOGICAL STUDY OF
SOCIAL ISSUES
PSYCHOLOGY AND THE TECHNIQUE OF GROUP LIVING
KURT LEWIN
UNIVERSITY OF IOWA
TUESDAY, SEPTEMBER 1, 9:00 P.M.
SALLE MODERNE

ANNUAL BUSINESS MEETING
OF THE
AMERICAN PSYCHOLOGICAL ASSOCIATION, INC.
CALVIN P. STONE, *President*
THURSDAY, SEPTEMBER 3, 3:30 P.M.
GEORGIAN ROOM

ADDRESS OF THE PRESIDENT
AMERICAN PSYCHOLOGICAL ASSOCIATION, INC.
*MULTIPLY, VARY, LET THE STRONGEST LIVE AND
THE WEAKEST DIE—CHARLES DARWIN*

CALVIN P. STONE
STANFORD UNIVERSITY
FRIDAY, SEPTEMBER 4, 8:00 P.M.
STATLER BALLROOM

ANNUAL BUSINESS MEETING
OF THE
PSYCHOMETRIC SOCIETY
PAUL HORST, *President*
THURSDAY, SEPTEMBER 3, 2:00 P.M.
PARLOR D

ADDRESS OF THE PRESIDENT
PSYCHOMETRIC SOCIETY
*THE TWILIGHT OF RUGGED INDIVIDUALISM
IN QUANTITATIVE PSYCHOLOGY*

PAUL HORST
PROCTER AND GAMBLE CO.
THURSDAY, SEPTEMBER 3, 7:15 P.M.

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PSYCHOLOGY AND THE WAR

STEUART HENDERSON BRITT, *Editor*

SELECTIVE SERVICE OCCUPATIONAL QUESTIONNAIRE

The general Occupational Questionnaire is now being sent out to thousands of registrants over the country by Selective Service Local Boards. Question Number 32 regarding professional and scientific workers should be of considerable interest to members of the psychological profession because of the inclusion of the word "Psychologist." This part of the questionnaire is reproduced below:

32. FOR PROFESSIONAL AND SCIENTIFIC WORKERS: Mark "X" before any occupation below in which you have had experience or training; if you are now working at one of these occupations, circle the number in front of it.

- | | | |
|------------------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 01 <input type="checkbox"/> Accountant. | 15 <input type="checkbox"/> Engineer, industrial. | 26 <input type="checkbox"/> Metallurgist. |
| 02 <input type="checkbox"/> Administrative official. | 16 <input type="checkbox"/> Engineer, metallurgical or mining. | 27 <input type="checkbox"/> Personnel manager. |
| 03 <input type="checkbox"/> Architect, naval. | 17 <input type="checkbox"/> Engineer, mechanical. | 28 <input type="checkbox"/> Physician. |
| 04 <input type="checkbox"/> Architect, other. | 18 <input type="checkbox"/> Engineer, radio. | 29 <input type="checkbox"/> Physicist. |
| 05 <input type="checkbox"/> Bacteriologist. | 19 <input type="checkbox"/> Engineer, refrigerating or air-conditioning. | 30 <input type="checkbox"/> Physiologist. |
| 06 <input type="checkbox"/> Biologist. | 20 <input type="checkbox"/> Geographer. | 31 <input type="checkbox"/> Psychologist. |
| 07 <input type="checkbox"/> Budget analyst. | 21 <input type="checkbox"/> Geologist or geophysicist. | 32 <input type="checkbox"/> Social worker. |
| 08 <input type="checkbox"/> Chemist. | 22 <input type="checkbox"/> Historian. | 33 <input type="checkbox"/> Sociologist. |
| 09 <input type="checkbox"/> Dentist. | 23 <input type="checkbox"/> Horticulturist. | 34 <input type="checkbox"/> Statistician. |
| 10 <input type="checkbox"/> Economist. | 24 <input type="checkbox"/> Lawyer. | 35 <input type="checkbox"/> Veterinarian. |
| 11 <input type="checkbox"/> Engineer, aeronautical. | 25 <input type="checkbox"/> Mathematician. | 36 <input type="checkbox"/> Other professional or scientific occupation. |
| 12 <input type="checkbox"/> Engineer, chemical. | | (specify)..... |
| 13 <input type="checkbox"/> Engineer, civil. | | |
| 14 <input type="checkbox"/> Engineer, electrical. | | |

Have you ever registered with the National Roster of Scientific and Specialized Personnel, Washington, D. C.?

- ☐ Yes. ☐ No. ☐ Don't know.

SELECTIVE SERVICE OCCUPATIONAL BULLETIN REGARDING SCIENTIFIC AND SPECIALIZED PERSONNEL

Occupational Bulletin No. 10 has just been released by the National Headquarters of the Selective Service System, dealing with the subject of "Scientific and Specialized Personnel." Because of its far-reaching implications for psychologists, this Bulletin appears below in its entirety:

OCCUPATIONAL BULLETIN (No. 10)

SUBJECT: SCIENTIFIC AND SPECIALIZED PERSONNEL

EFFECTIVE: IMMEDIATELY

DISTRIBUTION: STATE DIRECTORS

BOARD OF APPEAL MEMBERS

LOCAL BOARD MEMBERS

GOVERNMENT APPEAL AGENTS

PART I

1. There are certain persons trained, qualified, or skilled in scientific and specialized fields who, if engaged in the practice of their respective professions, are in a position to perform a vital service in activities necessary to war production and in activities essential to the support of the war effort.

PART II

1. The National Roster of Scientific and Specialized Personnel has certified to the Director of Selective Service that in activities necessary to war production and in activities essential to the support of the war effort, there are certain "critical occupations" which for the proper discharge of the duties involved require a high degree of training, qualification, or skill in scientific and specialized fields. The critical occupations in these scientific and specialized fields, as certified to the Director of Selective Service, are listed on page 4 attached to this bulletin.

2. All of these critical occupations, as listed, require highly specialized periods of training of two years or more. The critical occupations on the attached list exist within the provisions of Part V, Memorandum to All State Directors (I-405).

PART III

1. The National Roster of Scientific and Specialized Personnel has certified to the Director of Selective Service that there are serious shortages of persons trained, qualified, or skilled to engage in these critical occupations in activities necessary to war production and in activities essential to the support of the war effort. These shortages exist within the provisions of Part VII, Memorandum to All State Directors (I-405), and accordingly careful consideration for occupational classification should be given to all persons trained, qualified, or skilled in these critical occupations and who are engaged in activities necessary to war production or essential to the support of the war effort.

PART IV

1. There are many registrants who are in training and preparation to acquire the qualification or skill to engage in these critical occupations. Normally the period of training and preparation to acquire the necessary qualification or skill in these scientific and specialized fields extends over a period of four academic years in a recognized academic, professional, or technical college or university. In many instances, however, it is necessary for persons to have additional study in a recognized academic, pro-

fessional, or technical college or university in order to acquire the more highly specialized qualification or skill necessary for the performance of particular services in activities necessary to war production or essential to the support of the war effort. Persons engaging in further studies in addition to the four academic years normally required are referred to as graduate or postgraduate students.

2. A registrant who is in training and preparation for one of these scientific and specialized fields may not be considered for occupational classification until the close, or approximately the close, of his second or sophomore year in a recognized college or university.

3. A registrant who is in training and preparation for one of these scientific and specialized fields may be considered for occupational deferment at the close, or approximately at the close, of his second or sophomore year in a recognized college or university if he is pursuing a course of study upon the successful completion of which he will have acquired the necessary training, qualification, or skill, and if he gives promise of continuing and will be acceptable for continuing such course of study and will undertake actual further classroom work within a period of not to exceed four months from the close of his second year.

4. A registrant who is in training and preparation for one of these scientific and specialized fields shall be considered for occupational classification during his third and fourth years in a recognized college or university, provided that he gives promise of the successful completion of such course of study and the acquiring of the necessary degree of training, qualification, or skill.

5. A graduate or postgraduate student who is undertaking further studies for these scientific and specialized fields, following the completion of the normal four academic years, may be considered for occupational classification if, in addition to pursuing the additional studies, he is also acting as "graduate assistant" in a recognized college or university or is engaged in scientific research related to the war effort and which is supervised by a recognized Federal agency. A graduate assistant is a student in postgraduate studies who, in addition, is engaged in the teaching and instruction of undergraduate students in these scientific and specialized fields.

6. When a registrant has completed his training and preparation in a recognized college or university and has acquired a high degree of training, qualification, or skill in one of these scientific and specialized fields, such registrant should then be given the opportunity to become engaged in the practice of his profession in an activity necessary to war production or essential to the support of the war effort. In many instances following graduation from a recognized college or university, a certain period of time will be required in the placing of trained, qualified, or skilled personnel in an essential activity. When a registrant, has been deferred as a necessary man in order to complete his training and preparation, it is only logical that his deferment should continue until he has an opportunity to use his scientific and specialized training to the best interest of the nation. Accordingly, following graduation from a recognized college or university in any of these scientific and specialized fields, a registrant should be con-

sidered for further occupational classification for a period of not to exceed 60 days in order that he may have an opportunity to engage in a critical occupation in an activity necessary to war production or essential to the support of the war effort, provided that during such period the registrant is making an honest and diligent effort to become so engaged.

LEWIS B. HERSHEY, *Director*

LBH/phw

DISTRIBUTION "A, B, C, D, E, F"

CRITICAL OCCUPATIONS

SCIENTIFIC AND SPECIALIZED PERSONNEL

Accountants

Chemists

Economists

Engineers:

Aeronautical Engineers

Automotive Engineers

Chemical Engineers

Civil Engineers

Electrical Engineers

Heating, Ventilating, Refrigerating, and Air Conditioning Engineers

Marine Engineers

Mechanical Engineers

Mining and Metallurgical Engineers, including Mineral Technologists

Radio Engineers

Safety Engineers

Transportation Engineers—Air, Highway, Railroad, Water

Geophysicists

Industrial Managers

Mathematicians

Meteorologists

Naval Architects

Personnel Administrators

Physicists, including Astronomers

Psychologists

Statisticians

